Service Manual

19” LCD Monitor

DELL E193FPc

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Revision List

Revision	Date	Revision History	TPV model
A00	Mar-15-2004	Initial Release	T980KLLHJ8DMN
A01	Jul-20-2005	Change the panel from **LG (LPL 19" (B4KB))** to **SEC (SEC 19" EX1 (LOO))**	T980KSLHM8DLN
A02	Nov-22-2005	Add **"Important Safety Notice"**	
A03	Mar.-28-2006	Add **"Definition Of Pixel Defects"**	
A04	April-25-2006	Add "**Max Brightness measurement**" on Page43	
A05	Jun-28-2006	Add new model in Item 13	T980KALHK8DLN T980KSLHK8DLN
A06	Mar-02-2007	Add Mechanical Instruction in Item 6	

Important Safety Notice

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.
CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING
REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINGS

Important Safety Notice

Proper service and repair is important to the safe, reliable operation of all Dell Company** Equipment. The service procedures recommended by Dell and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.
It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It is also important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Dell could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Dell has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Dell must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, Dell Company will be referred to as Dell.
WARNING
Use of substitute replacement parts, which do not have the same, specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from Dell. Dell assumes no liability, express or implied, arising out of any unauthorized modification of design. Servicer assumes all liability.

FOR PRODUCTS CONTAINING LASER:

DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
CAUTION - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
CAUTION - The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

Take care during handling the LCD module with backlight unit

- Must mount the module using mounting holes arranged in four corners.
- Do not press on the panel, edge of the frame strongly or electric shock as this will result in damage to the screen.
- Do not scratch or press on the panel with any sharp objects, such as pencil or pen as this may result in damage to the Panel.
- Protect the module from the ESD as it may damage the electronic circuit (C-MOS).
- Make certain that treatment person’s body is grounded through wristband.
- Do not leave the module in high temperature and in areas of high humidity for a long time.
- Avoid contact with water as it may a short circuit within the module.

If the surface of panel becomes dirty, please wipe it off with a soft material. (Cleaning with a dirty or rough cloth may damage the panel.)

1. Monitor Specifications

48 cm (19") a-si TFT Active matrix LCD panel, 0.294mm dot pitch.

16 factory presets, 20 new modes

Vertical refresh rate 55Hz to 75 Hz

Horizontal frequency 30kHz to 80kHz

Resolutions: 640 x 480 up to 1280 x 1024

Universal power supply designed for worldwide application

CE mark

TCO-99

VESA DPMS compliant

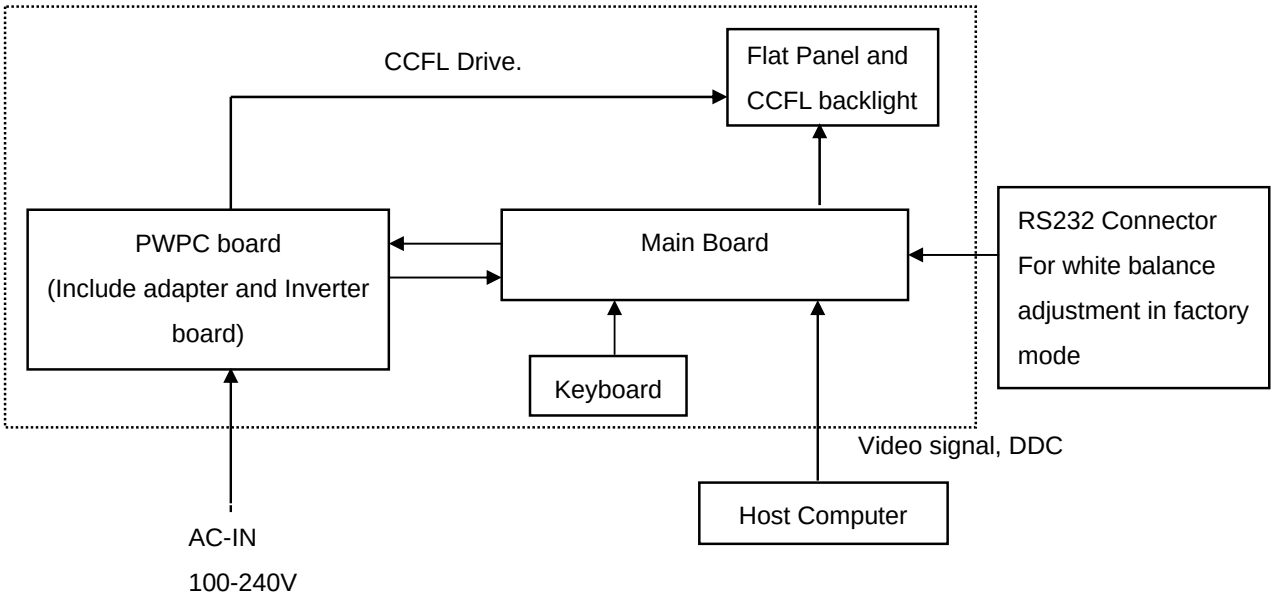
VESA DDC compliant

2. LCD Monitor Description

The LCD MONITOR will contain a main board, PWPC board, keypad board, which house the flat panel control logic, brightness control logic and DDC.

The power board will provide AC to DC Inverter voltage to drive the backlight of panel and the main board chips each voltage.

Monitor Block Diagram



3. Operation instructions

3.1 General Instructions

Press the power button to turn the monitor on or off. The other control buttons are located at front panel of the monitor. By changing these settings, the picture can be adjusted to your personal preferences.

- The power cord should be connected.
- Connect the video cable from the monitor to the video card.
- Press the power button to turn on the monitor, the power indicator will light up.

3.2 Control Buttons

Power Button: When pressed, the monitor enters the off mode, and the LED turns blank. Press again to restore normal status.

Brightness Button: The Brightness Button is used to select the Brightness/Contrast adjust functions. Press to switch functions or adjust settings.

Auto Adjust Key: The Auto Adjust Key is used to automatically set the H Position, V Position, Clock and Phase.

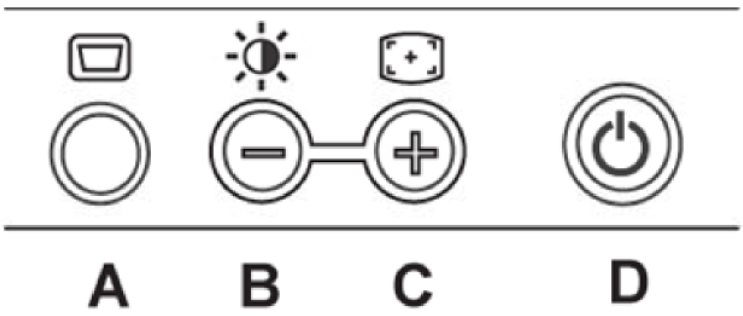
Power Indicator:

Green — Power On mode.

Orange — Power Saving mode.

Blank — Power Off Mode.

Control Button



A. Buttons for the OSD menu (On-Screen-display)

B. Brightness Button

C. Auto Adjust Button

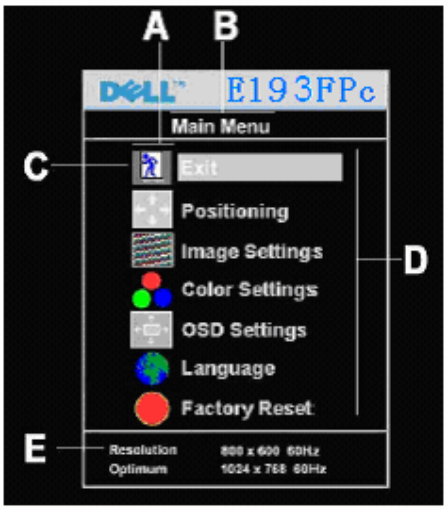
D. Power On/Off Button and indicator

3.3 Adjusting the Picture

To set the OSD menu, perform the following steps:

Briefly press the SELCT / MENU button to activate the OSD menu.

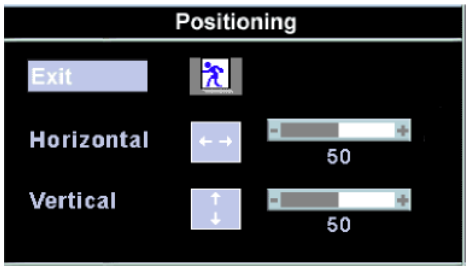
The main menu appears on the screen with icons for the setting functions.



The first symbol *(Exit)* is highlighted.

Necessary, press the - or + button to mark another icon (e.g. *Positioning).* Press the SELECT/MENU button to select the highlighted icon.

The corresponding setting window (here: *Positioning)* is displayed.



The first symbol *(Exit)* is highlighted.

If necessary, press the – or + button to mark the desired icon.

Press the SELECT/MENU button to select the highlighted function.

Press the – or + button to adjust the value for the selected function.

Press the SELECT/MENU button to exit the function.

Press the SELECT/MENU button to exit the sub-menu when “Exit” function is highlighted.

All changes are stored automatically.

Adjusting the brightness and contrast

	Calling the *Brightness* / *Contrast* setting window using Brightness button.
Brightness	Setting the brightness of the display With this function you change the brightness of the background lighting.
Contrast	Setting the contrast of the display With this function you modify the contrast of bright color tones.

Adjusting size and position

	Calling the Positioning setting window
H-Position	Adjusting the horizontal position With this function you move the picture to the left or to the right.
V-Position	Adjusting the vertical position With this function you move the picture up or down.

Setting Image

	Calling the Image setting window
Auto Adjust	Auto adjust will produce best image automatically, The information of " Auto Adjust In Progress" will show;
Pixel clock	Adjusting the pixel clock
Phase	Adjusting the phase

Setting color temperature and colors

	Calling the *Color* setting window
	Selecting the color temperature The color temperature is measured in K (= Kelvin). You can select from Normal Preset, Blue Preset, Red Preset to User Preset; Normal preset = Original color of the LCD display, it's 6500K; Blue preset =5700Kcolour of the LCD display, it's 9300K; Red preset =9300K color of the LCD display, it's 5700K; User preset = Setting user-defined colors In the user preset setting you can change the color ratios of the basic colors (red, green, blue) as required.

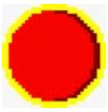
Setting display of the OSD menu

	Calling the *OSD Set up* setting window
Horizontal Position	Setting the horizontal position of the OSD menu With this function you move the OSD menu to the left or to the right.
Vertical Position	Setting the vertical position of the OSD menu With this function you move the OSD menu up or down.
OSD Hold Time	Setting the display duration of the OSD menu With this function you select a value from 0 to 60 seconds. If the set time expires without a setting being made, the OSD menu is automatically faded out.
OSD Lock	Setting the display of the OSD menu lock or unlock. With this function you select Yes to lock OSD, NO to unlock it.

Setting Language

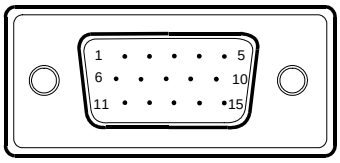
	Calling the *Language* setting window
	With this function you choose between English (default setting), French, German, Spanish and Japanese as the language for the OSD menu.

Factory Reset

	Activating the factory settings
	With this function all settings except Language of OSD are reset to the factory settings without prompting for confirmation.

4. Input/Output Specification

4.1 Input Signal Connector

Pin No.	Description	Pi N No.	Description
1.	Red Video	9.	+5V
2.	Green Video	10.	Detector Pin
3.	Blue Video	11.	RXD
4.	TXD	12.	DDC-Serial Data
5.	DDC-Return	13.	H-Sync
6.	R-Ground	14.	V-Sync
7.	G-Ground	15.	DDC-Serial Clock
8.	B-Ground		
VGA Connector layout			
			

4.2 Factory Preset Display Modes

VESA MODES							
			Horizontal		Vertical		
Mode	Resolution	Total	Nominal Frequency +/- 0.5kHz	Sync Polarity	Nominal Freq. +/- 1 Hz	Sync Polarity	Nominal Pixel Clock (MHz)
VGA	640x480@60Hz	800 x 525	31.469	N	59.940	N	25.175
	640x480@75Hz	840 x 500	37.500	N	75.00	N	31.500
	800x600@60Hz	1056 x 628	37.879	P	60.317	P	40.000
	800x600@75Hz	1056x625	46.875	P	75.000	P	49.500
XGA	1024x768@60Hz	1344x806	48.363	N	60.004	N	65.000
	1024x768@75Hz	1312x800	60.023	P	75.029	P	78.750
SXGA	1280x1024@60Hz	1688x1066	64.000	P	60.000	P	108.00
	1280x1024@75Hz	1688x1066	79.976	P	75.025	P	135.00
IBM MODES							
Mode	Resolution	Total	Nominal Frequency +/- 0.5kHz	Sync Polarity	Nominal Freq. +/- 1 Hz	Sync Polarity	Nominal Pixel Clock (MHz)
DOS	720x400@70Hz	900 x 449	31.469	N	70.087	P	28.322

4.3 Power Supply Requirements

A/C Line voltage range	100 V ~ 240 V± 10 %
A/C Line frequency range	50 ± 3Hz, 60 ± 3Hz
Input Voltage transients	280 volts AC for 10 sec @40℃
Current	0.6A max. at 100V, 0.35A max. at 240 V
Peak surge current	< 60A peak at 240 VAC and cold starting < 30A peak at 120VAC and cold starting
Leakage current	< 3.5mA
Power line surge	No advance effects (no loss of information or defect) with a maximum of 1 half-wave missing per second

4.4 Panel Specification

4.4.1 Display Characteristics

For LM190E03-B4 model

Active screen size	19.0 inches (481.84mm) diagonal
Outline Dimension	404.2(H) x 330.0(V) x 20.0(D) mm(Typ.)
Pixel Pitch	0.098*RGB(H)mm x 0.294(V)mm
Pixel Format	1280 horizontal By 1024 vertical Pixels. RGB stripe arrangement
Interface	LVDS 2Port
Color depth	16.2M colors
Luminance, white	250 cd/m² (Center 1Point, typ)
Viewing Angle (CR>10)	Viewing Angle Free [R/L 140(Typ.), U/D 140(Typ.)]
Power Consumption	Total 21.05Watt(Typ.), (2.45Watt @V_{LCD}, 18.60 @[Lamp=6.5mA])
Weight	2500g (Typ.)
Display operating mode	Transmissive mode, normally White
Surface treatments	Hard coating (3H), Anti-glare treatment of the front polarizer

For LTM190EX-L01 model

Items	Specification	Unit	Note
Display area	376.32(H) x 301.056(V)	mm	
Driver element	a-Si TFT active matrix		
Display colors	16.7M	colors	
Number of pixels	1280 x 1024	pixel	
Pixel arrangement	RGB vertical stripe		
Pixel pitch	0.294(H) x 0.294(W)	mm	
Display mode	Normally White		
Surface treatment	Haze 25% , Hard-coating (3H)		

4.4.2 Optical Characteristics

For LM190E03-B4 model

Ta= 25°C, V_{LCD}=5.0V, fV=60Hz Dclk=54MHz,

Parameter		Symbol	Values			Units	Notes
			Min	Typ	Max		
Contrast Ratio		CR	300	500	-		1
Surface Luminance, white		L_{WH}	200	250	-	cd/m^2	2
Luminance Variation		δ_{WHITE} 5P			1.3		3
Response Time	Rise Time	Tr_R	-	2	5	ms	4
	Decay Time	Tr_D	-	10	20	ms	4
Color Coordinates [CIE1931]	RED	Rx	Typ -0.03	0.639	Typ +0.03		
		Ry		0.342			
	GREEN	Gx		0.297			
		Gy		0.615			
	BLUE	Bx		0.146			
		By		0.068			
	WHITE	Wx		0.313			
		Wy		0.329			
Viewing Angle (CR>5)							
	x axis, right(ϕ=0°)	θr	70	80		degree	5
	x axis, left (ϕ=180°)	θl	70	80			
	y axis, up (ϕ=90°)	θu	75	85			
	y axis, down (ϕ=270°)	θd	65	75			
Viewing Angle (CR>10)							
	x axis, right(ϕ=0°)	θr	60	70		degree	5
	x axis, left (ϕ=180°)	θl	60	70			
	y axis, up (ϕ=90°)	θu	65	75			
	y axis, down (ϕ=270°)	θd	55	65			
Gray Scale				-			6

For LTM190EX-L01 model

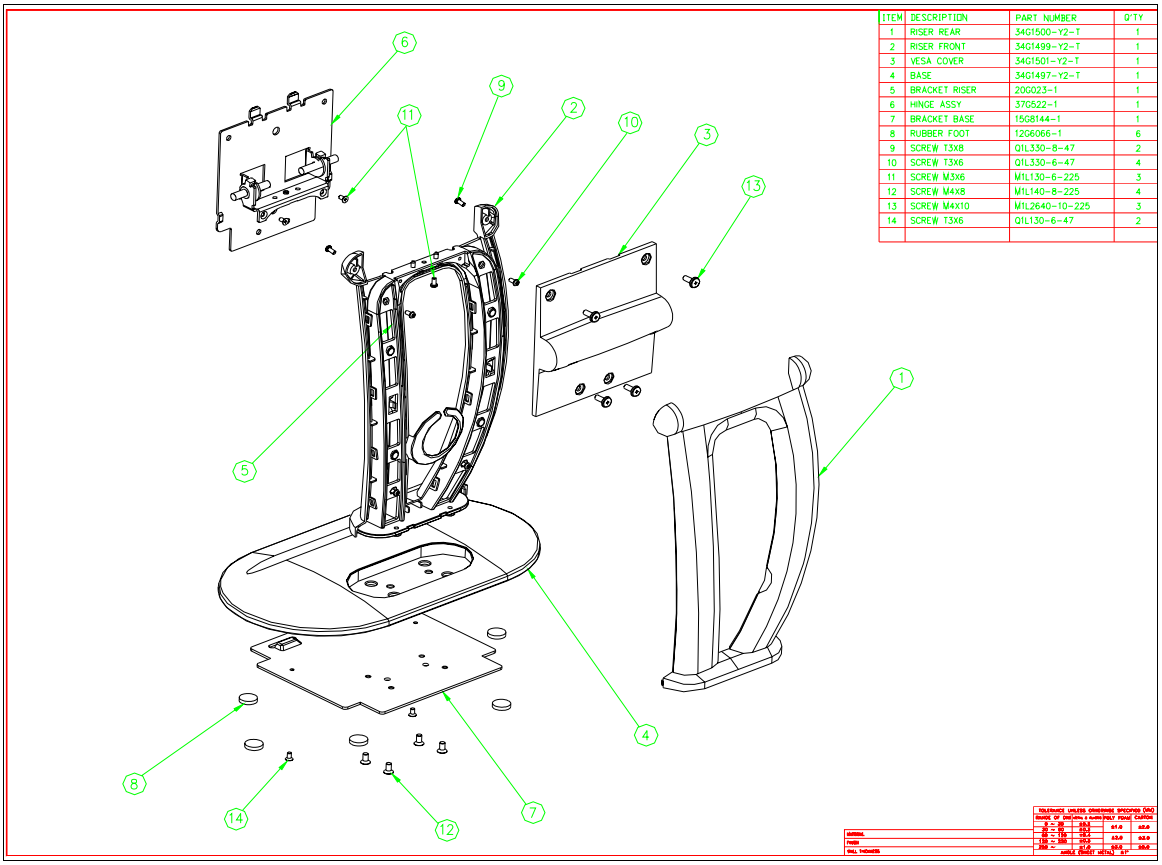
The optical characteristics are measured under stable conditions as follows:

(Inverter Freq. : 50kHz) * Ta = 25 ± 2°C, V_{DD}=5V, fv= 60Hz, f_{DCLK}=54MHz, I_L = 7.5mA_{rms}

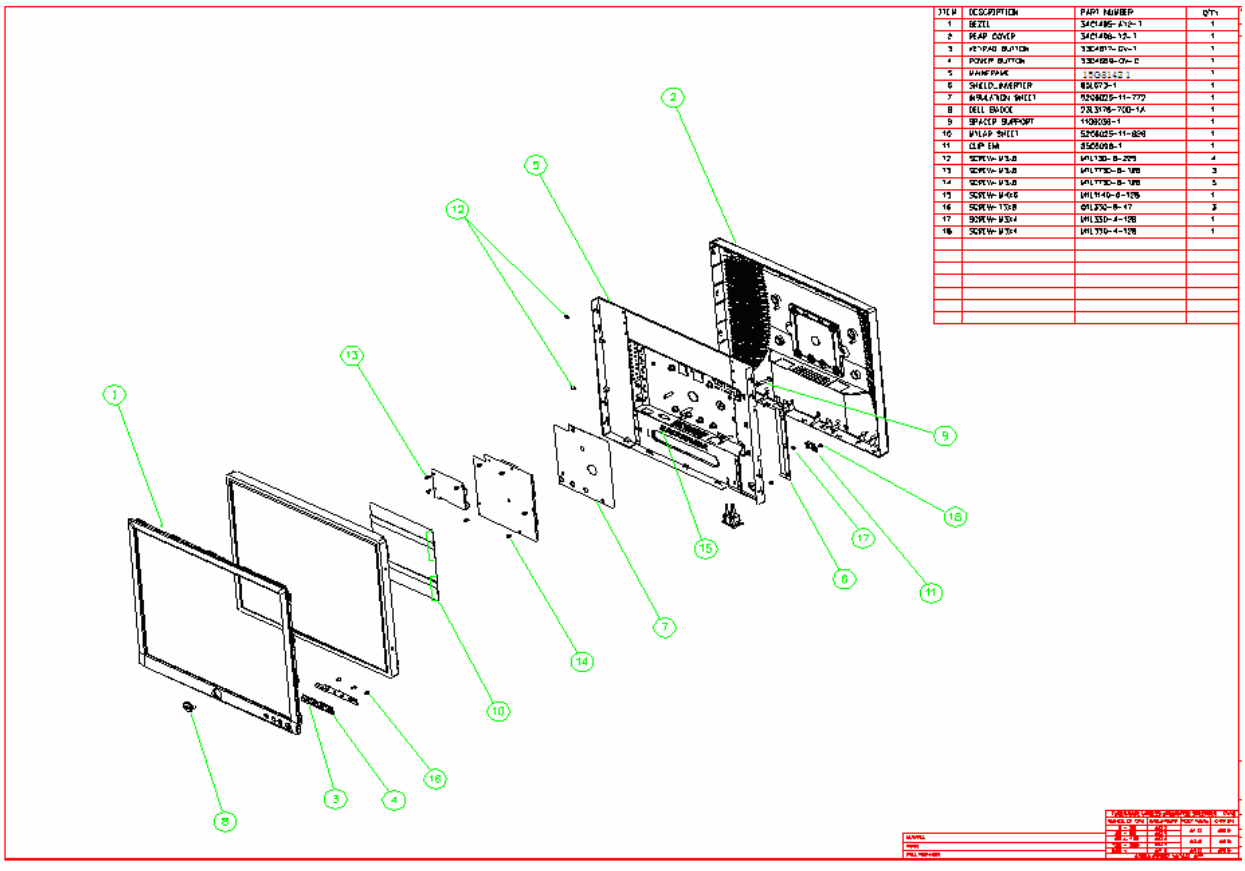
Item		Symbol	Condition	Min.	Typ.	Max.	Unit	Note
Contrast Ratio (Center of screen)		C/R	Normal ϕ = 0 θ = 0 Viewing Angle	450	700	-		(3) BM-5A
Response Time	Rising	Tr		-	1.7	3	msec	(5) BM-7
	Falling	Tf		-	6.3	9		
Luminance of White (Center of screen)		Y_L		250	300	-	cd/m2	(6) BM-5A
Color Chromaticity (CIE 1931)	Red	Rx		0.610	0.640	0.670		(7) PR650
		Ry		0.299	0.329	0.359		
	Green	Gx		0.270	0.300	0.330		
		Gy		0.570	0.600	0.630		
	Blue	Bx		0.120	0.150	0.180		
		By		0.030	0.060	0.090		
	White	Wx		0.283	0.313	0.343		
		Wy		0.299	0.329	0.359		
Color Chromaticity (CIE 1976)	Red	Ru'		-	0.452	-		
		Rv'		-	0.522	-		
	Green	Gu'		-	0.125	-		
		Gv'		-	0.563	-		
	Blue	Bu'		-	0.175	-		
		Bv'		-	0.158	-		
	White	Wu'		-	0.198	-		
		Wv'		-	0.468	-		
Color Grayscale Linearity	White	Δu'v'		-	0.018	-		(9) PR650
Viewing Angle	Hor.	θ L	CR≥10	65	75	-	Degrees	(8) BM-5A
		θ R		65	75	-		
	Ver.	ϕ H		65	75	-		
		ϕ L		50	60	-		
Brightness Uniformity (9 Points)		Buni		-	-	25	%	(4) BM-5A
Cross Modulation		DSHA		-	-	2	%	(10) BM-5A
Flicker		F		-	-	8		(11) BM-7

5. Block Diagram

5.1 Monitor Exploded View

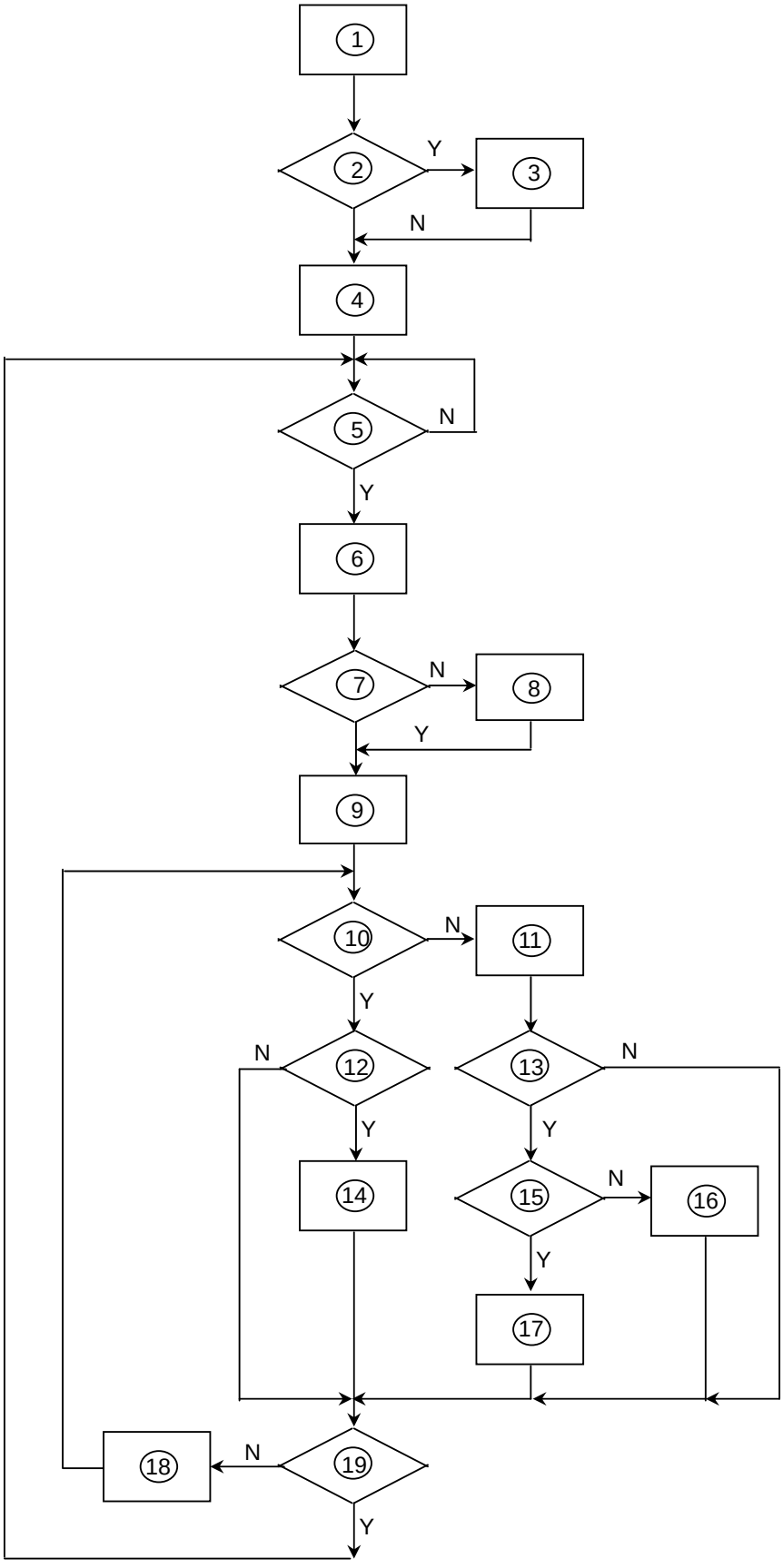


ITEM	DESCRIPTION	PART NUMBER	QTY
1	RISER REAR	34G1500-Y2-T	1
2	RISER FRONT	34G1499-Y2-T	1
3	VESA COVER	34G1501-Y2-T	1
4	BASE	34G1497-Y2-T	1
5	BRACKET RISER	20G023-1	1
6	HINGE ASSY	37G522-1	1
7	BRACKET BASE	15G8144-1	1
8	RUBBER FOOT	12G6066-1	6
9	SCREW T3X8	QIL330-8-47	2
10	SCREW T3X6	QIL330-6-47	4
11	SCREW M3X6	MIL130-6-225	3
12	SCREW M4X8	MIL140-8-225	4
13	SCREW M4X10	MIL2640-10-225	3
14	SCREW T3X6	QIL130-6-47	2



ITEM	DESCRIPTION	PART NUMBER	QTY
1	BEZEL	34G1486-A12-1	1
2	REAR COVER	34G1486-12-1	1
3	KEYPAD BUTTON	33G4817-D01	1
4	POWER BUTTON	33G4818-D1-C	1
5	NAMEPLATE	15G81421	1
6	SHIELD_INVERTER	82G73-1	1
7	INSULATION SHEET	52G8025-11-777	1
8	DELL BADGE	23L3176-700-1A	1
9	SPACER SUPPORT	14G8058-1	1
10	MYLAR SHEET	52G8025-11-826	1
11	CLIP EAR	35G6018-1	1
12	SCREW-M3.5	MIL130-8-209	4
13	SCREW-M3.5	MIL1730-8-188	3
14	SCREW-M3.5	MIL1730-8-188	5
15	SCREW-M4X6	MIL1140-6-188	1
16	SCREW-T3X8	QIL330-8-47	3
17	SCREW-M3X4	MIL330-4-188	1
18	SCREW-M3X4	MIL330-4-188	1

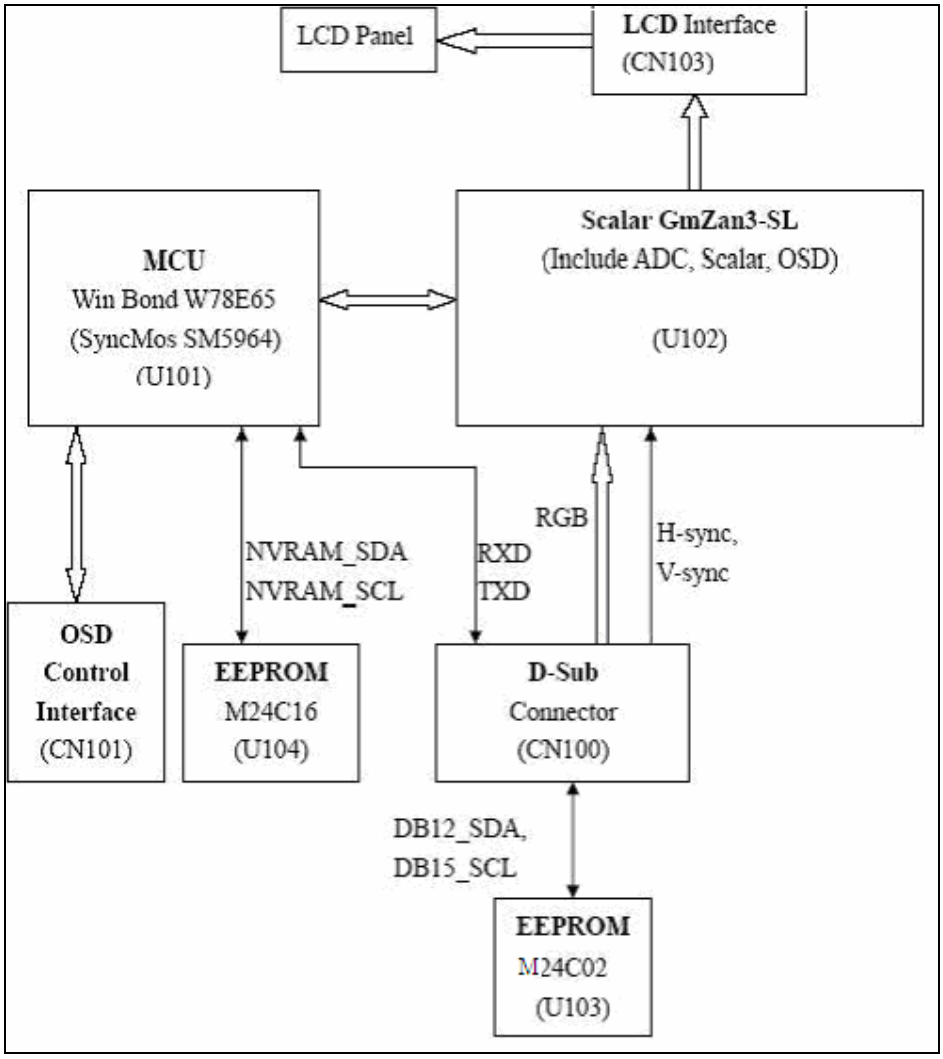
5.2 Software Flow Chart



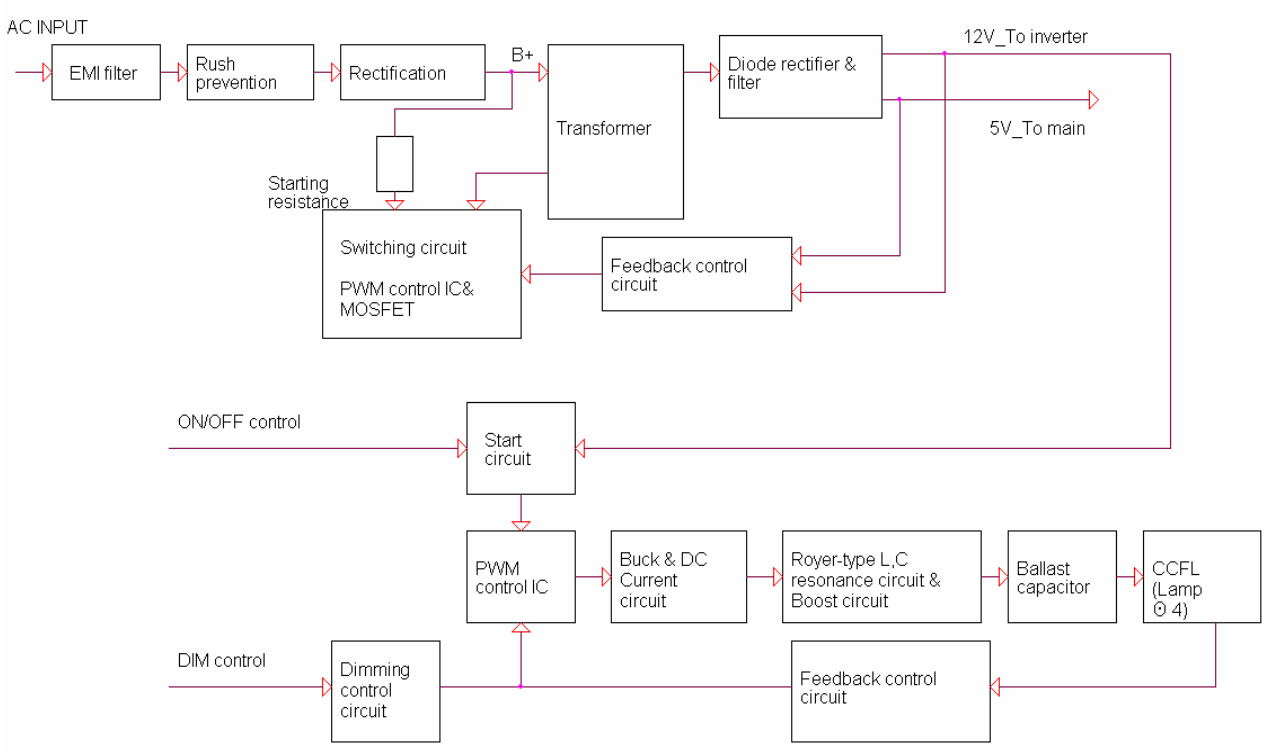
1) MCU Initializes.
2) Is the EEprom blank?
3) Program the EEprom by default values.
4) Get the PWM value of brightness from EEprom.
5) Is the power key pressed?
6) Clear all global flags.
7) Are the AUTO and SELECT keys pressed?
8) Enter factory mode.
9) Save the power key status into EEprom. Turn on the LED and set it to green color. Scalar initializes.
10) In standby mode?
11) Update the lifetime of back light.
12) Check the analog port, are there any signals coming?
13) Does the scalar send out an interrupt request?
14) Wake up the scalar.
15) Are there any signals coming from analog port?
16) Display "No connection Check Signal Cable" message. And go into standby mode after the message disappears.
17) Program the scalar to be able to show the coming mode.
18) Process the OSD display.
19) Read the keyboard. Is the power key pressed?

5.3 Electrical Block Diagram

5.3.1 Main Board



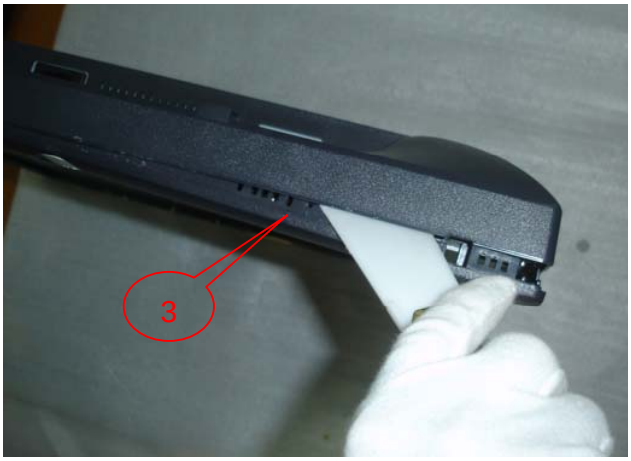
5.3.2 Inverter/Power Board

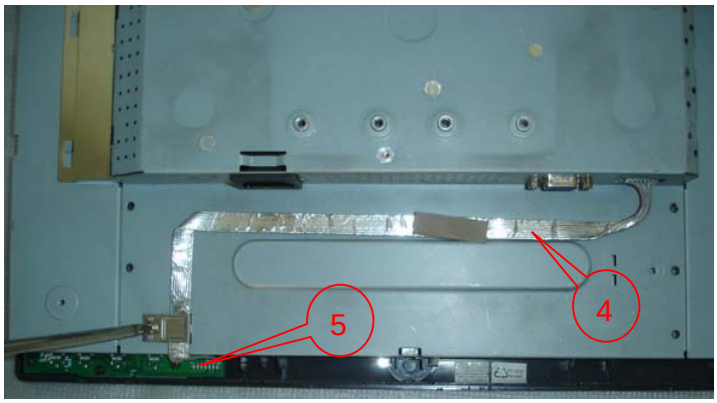


6. Mechanical Instruction

Tools: 2 Power screwdrivers (φ=5mm,L=60mm); 1 small cross screwdriver; turnbuckle driver;

Setting: Power screwdriver torque A=11 kgF. Cm; torque B=6 kgF. Cm

Fig	Remark
	**Remove stand：** Remove the 4 screws and remove the stand ass'y by torque A
	**Remove the rear cover** Pry the monitor up then find out the hooks' position, use the tool (like the picture or other card) to insert into the gap of bezel and rear cover.
	Turn over the monitor as the Fig and take off the rear cover



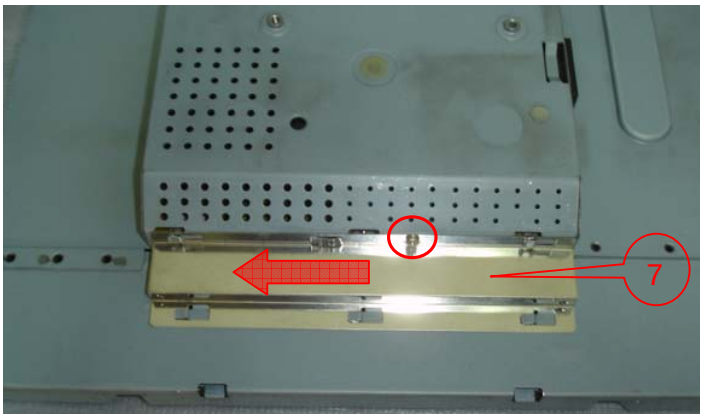
Remove bezel:

Disconnect the Key board connector and remove the bezel

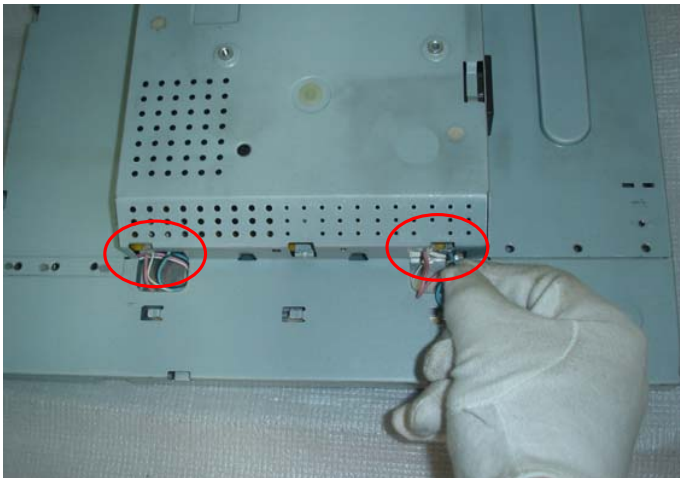
Remove the small shield:

Remove the screws by Torque B

Symbol	TPV Part Number	Description
4	095G8014 8 21	wire harness
5	KEPC980KED1	Key Board
6	015G8140 2	Main Frame

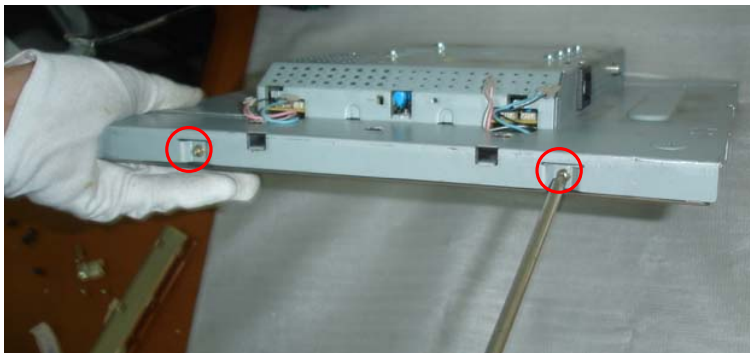


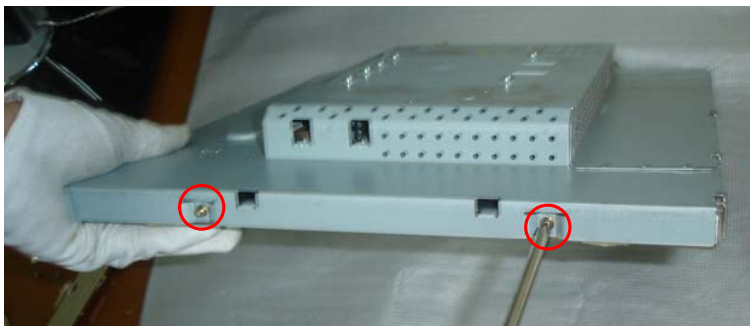
Remove the screw and push the small shield as the arrowhead direction by Torque B or by manual



Remove the main frame:

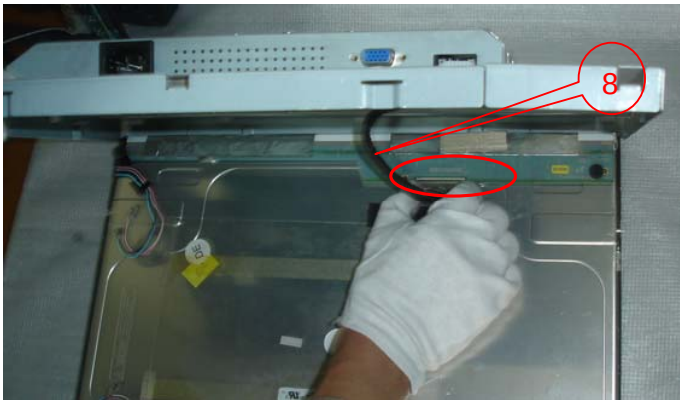
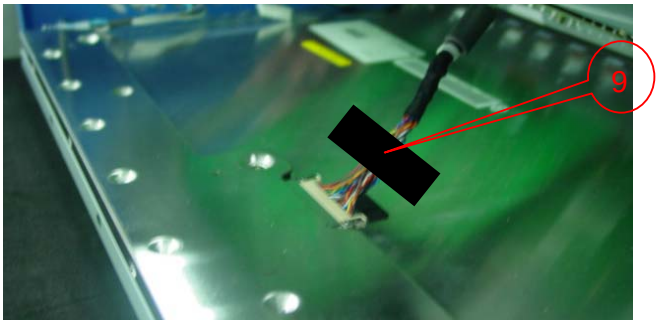
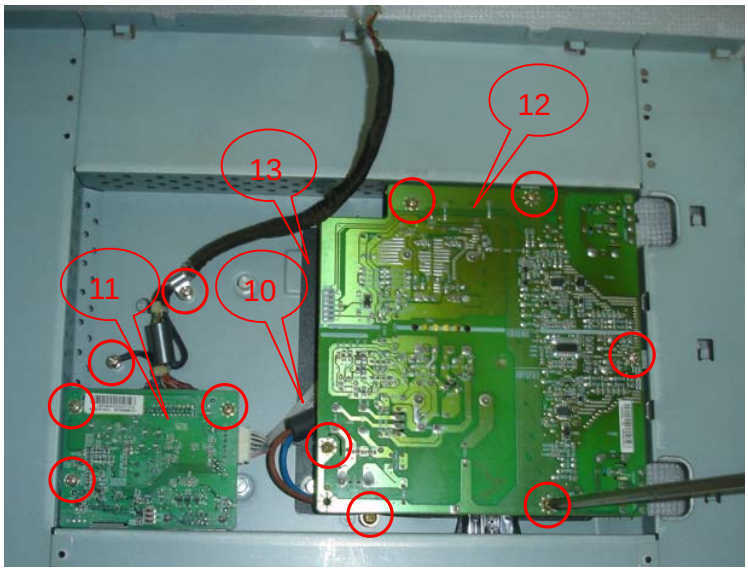
Disconnect the back light connectors

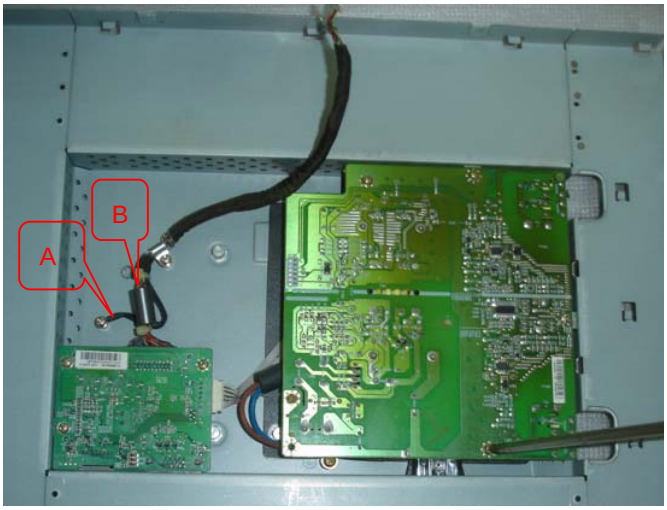




Remove the four screws and remove the main frame By manual or torque = 3kgF.Cm

Symbol	TPV Part Number	Description
7	085G 673 1	SHIELD-INVERTER

	Remove the main frame and at the same time disconnect the LVDS connector
	Fix the Lvds use Black Adhesive Tape
	**Remove the Power board and main board：** Remove the eight screws and remove the Power board and main board.



Button the harness A and B by Fix Button and screw to main frame.

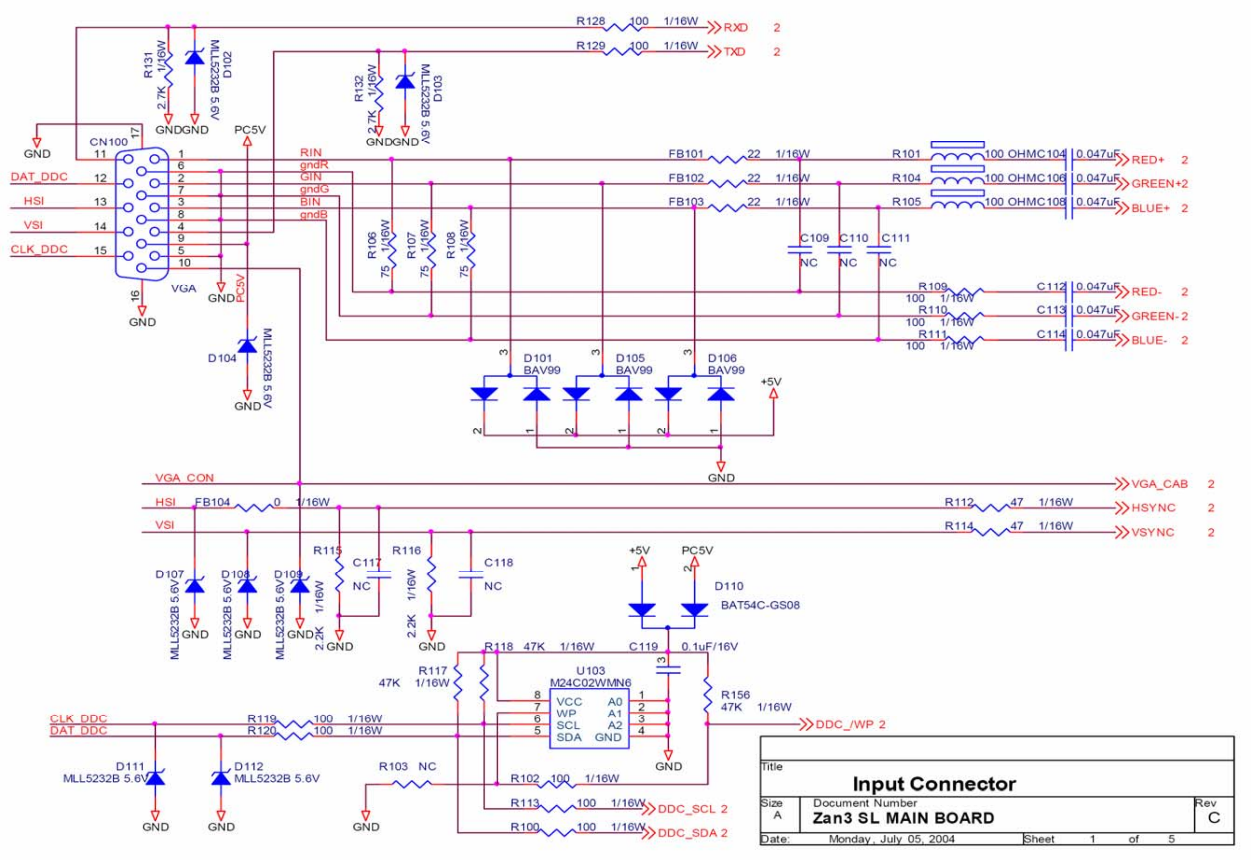
Note: Screw the cable hook as the figure showed and makes sure the line B is above line A.

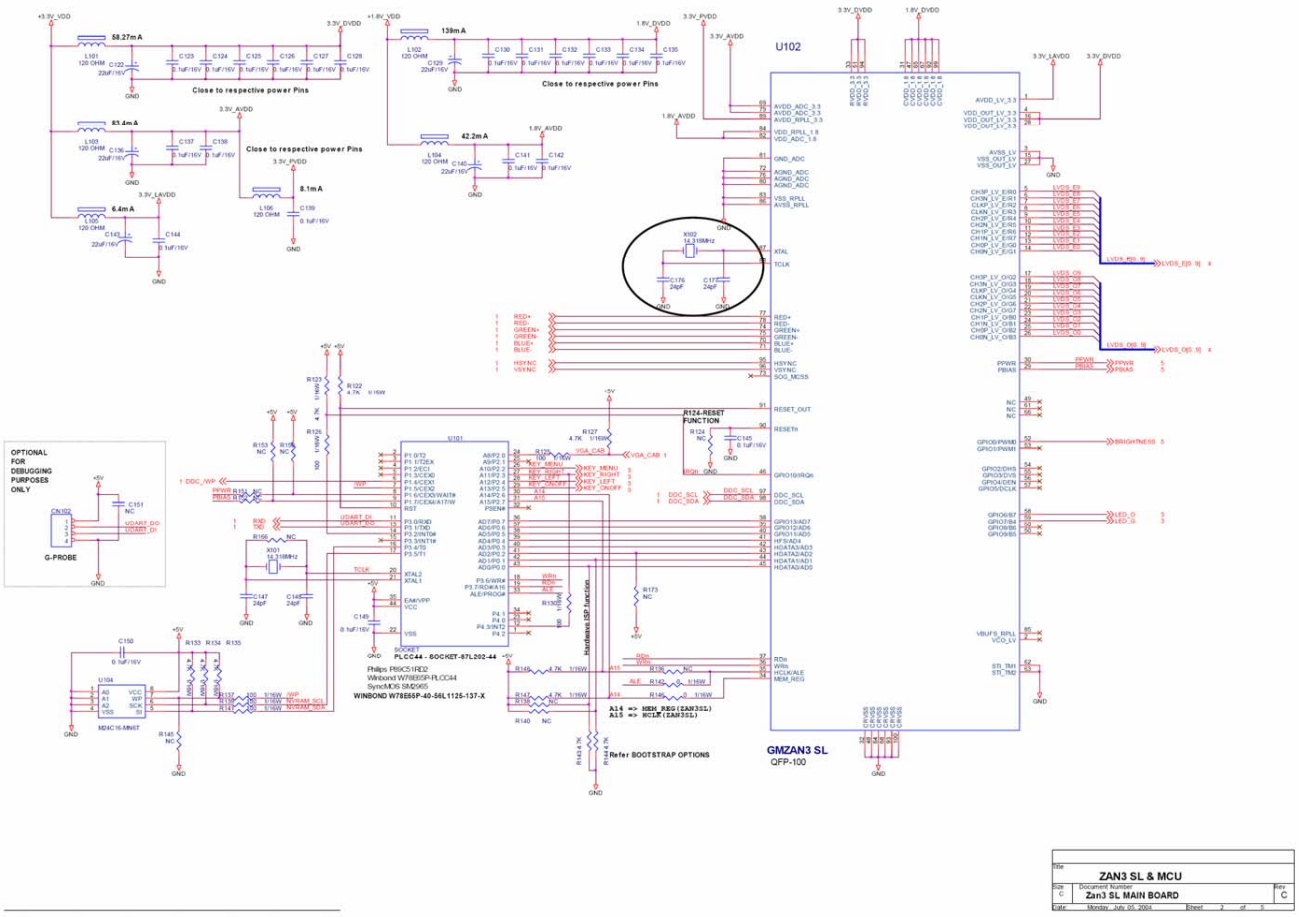
The end

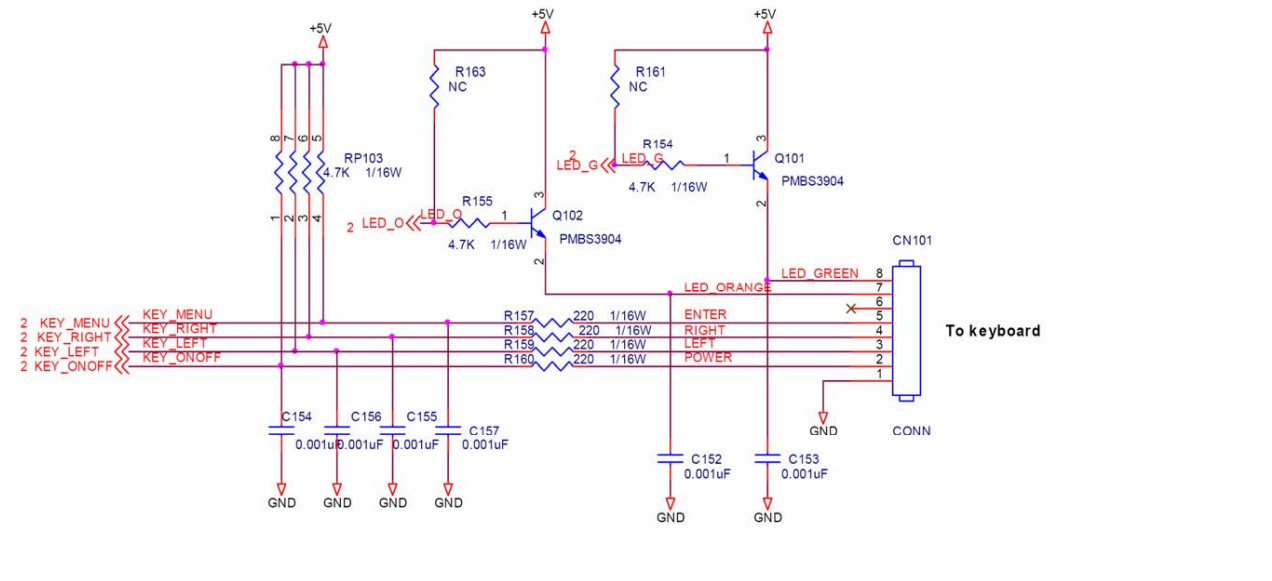
Symbol	TPV Part Number	Description	Symbol	TPV Part Number	Description
8	95G8018 30590/95G8018 30632 95G8018 30576 095G8018 30594	LVDS	11	CBPC980KLLDR CBPC980KSLDR CBPC980KALDR	Main Board
9	052G 1150 C	Black Adhesive Tape	12	PWPC1942LGD1 PWPC1942SED1 PWPC1942AUD1	Power Board
10	095G8014 6 19	Wire Harness	13	052G6025 11772	Mylar

7. Schematic

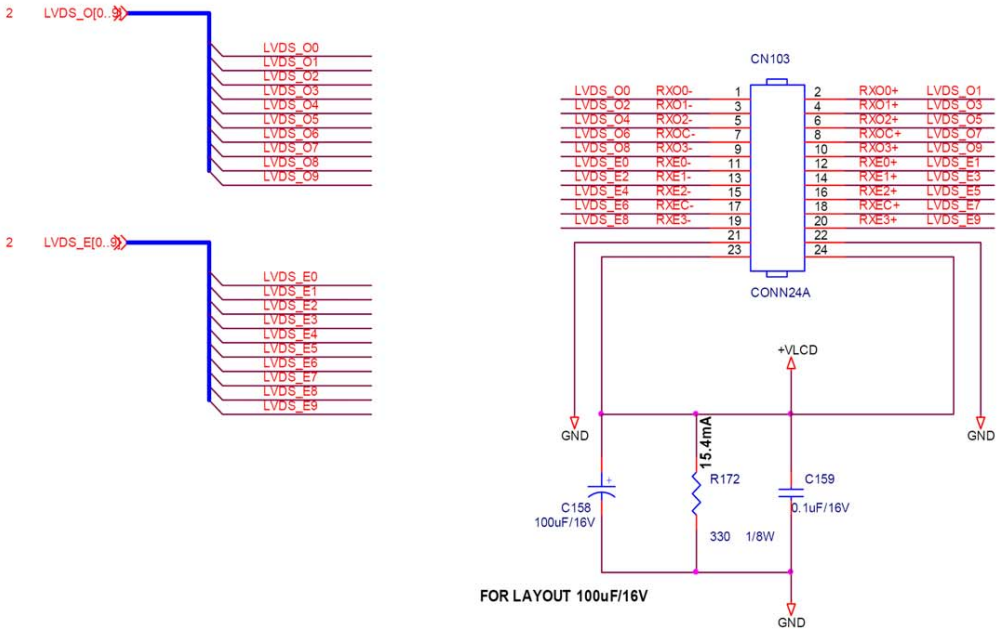
7.1 Main Board



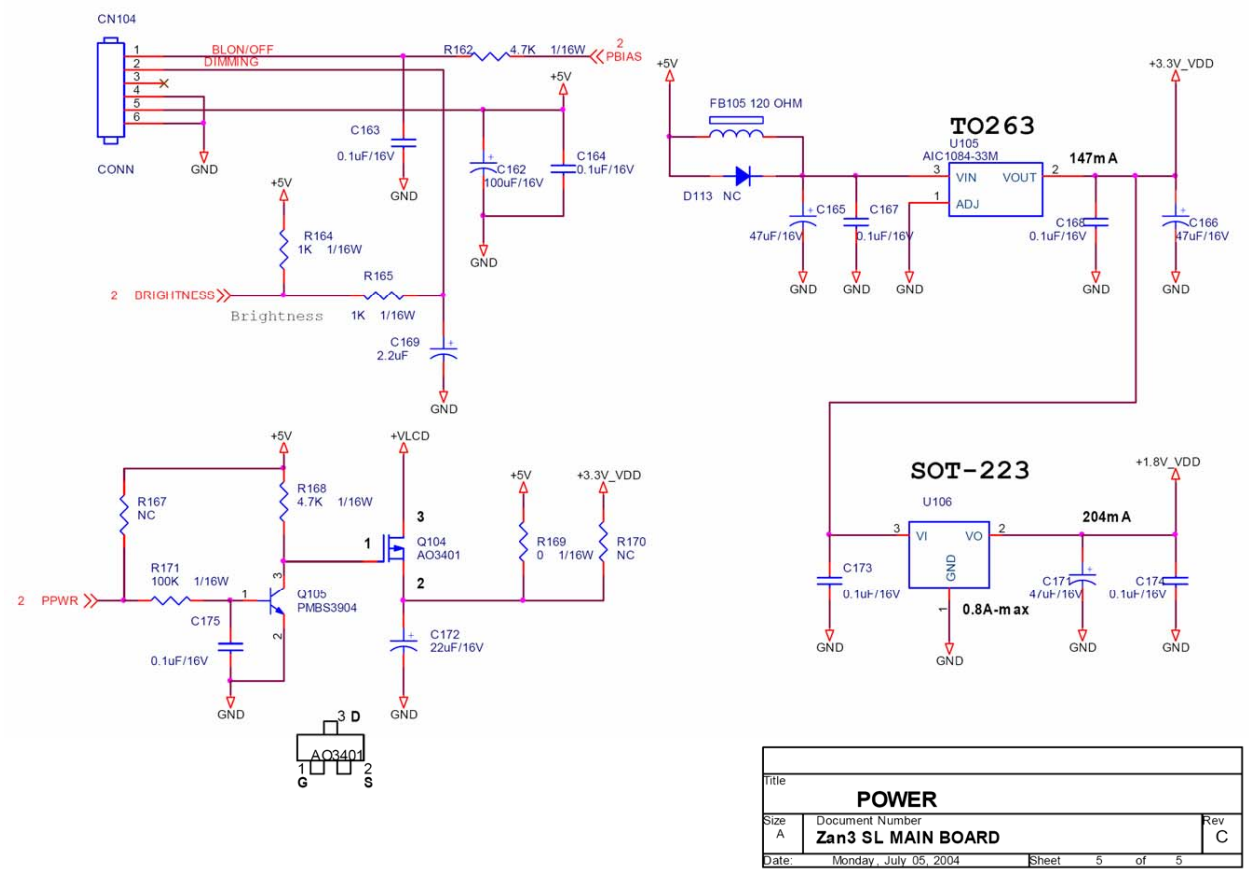




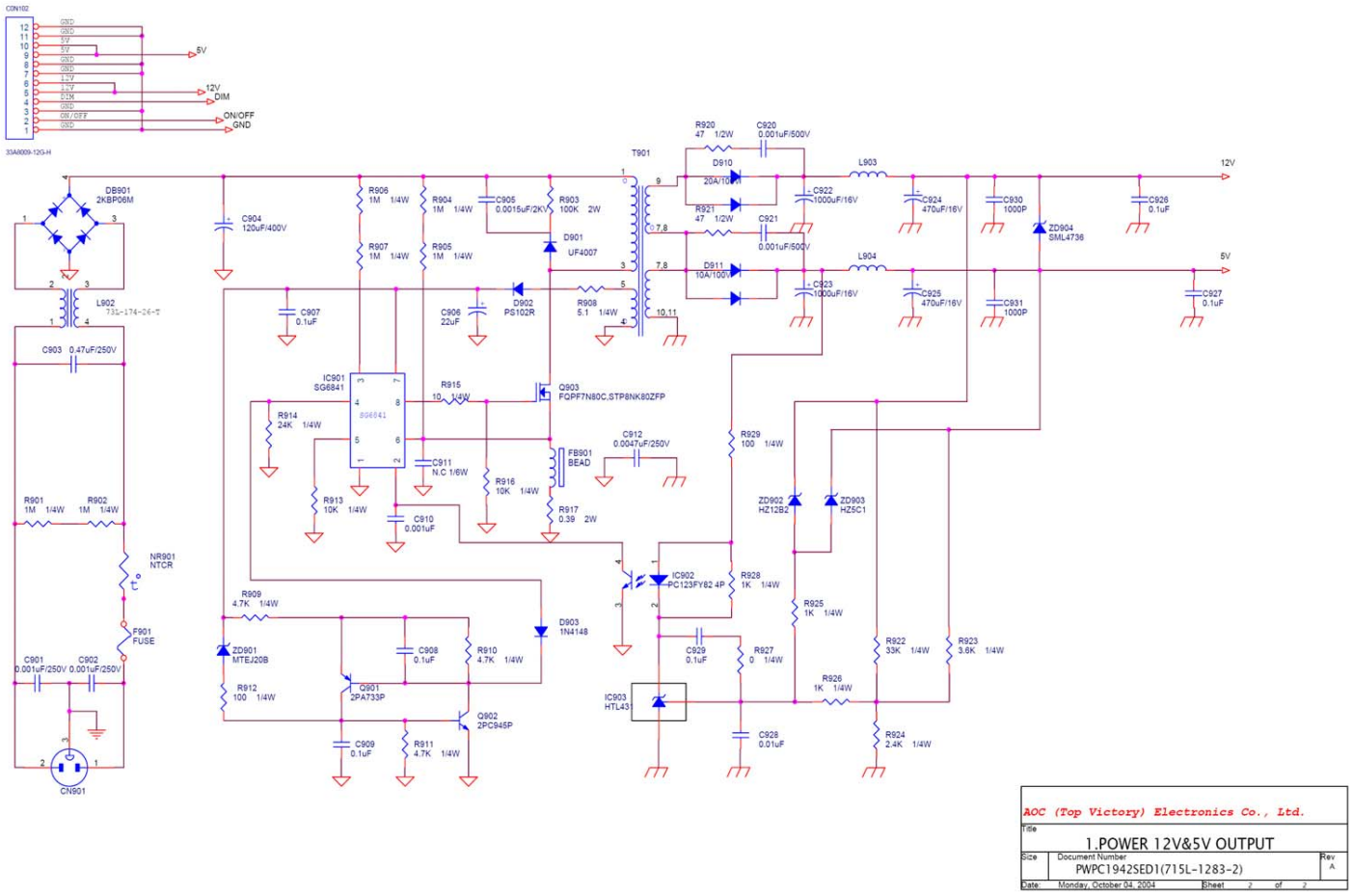
Title	**KEYS CONNECTION**	
Size A	Document Number **Zan3 SL MAIN BOARD**	Rev C
Date: Monday, July 05, 2004	Sheet 3 of 5	

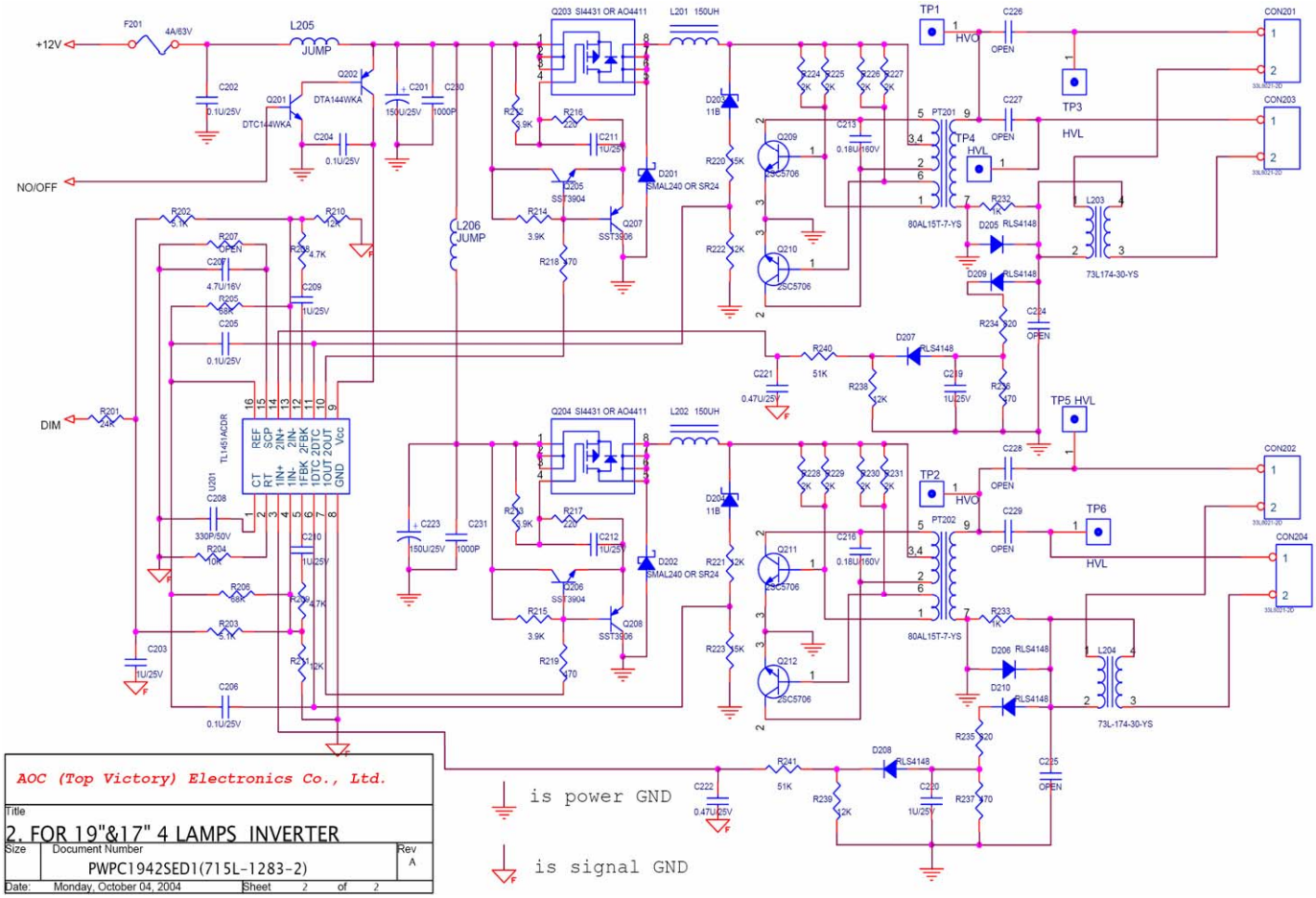


Title: **PANEL INTERFACE**		
Size: A	Document Number: **Zan3 SL MAIN BOARD**	Rev: C
Date: Monday, July 05, 2004	Sheet 4 of 5	



7.2 Power Board

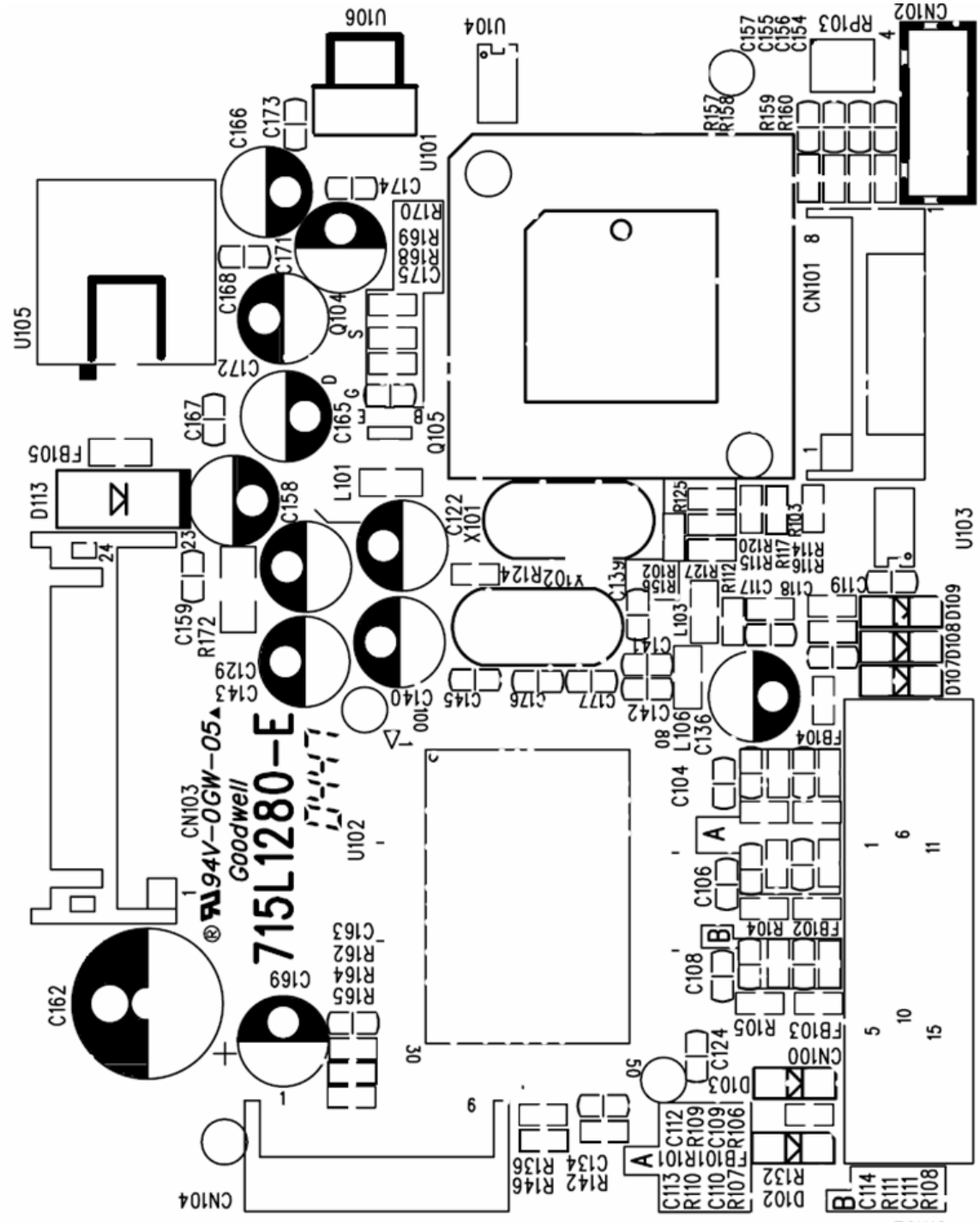


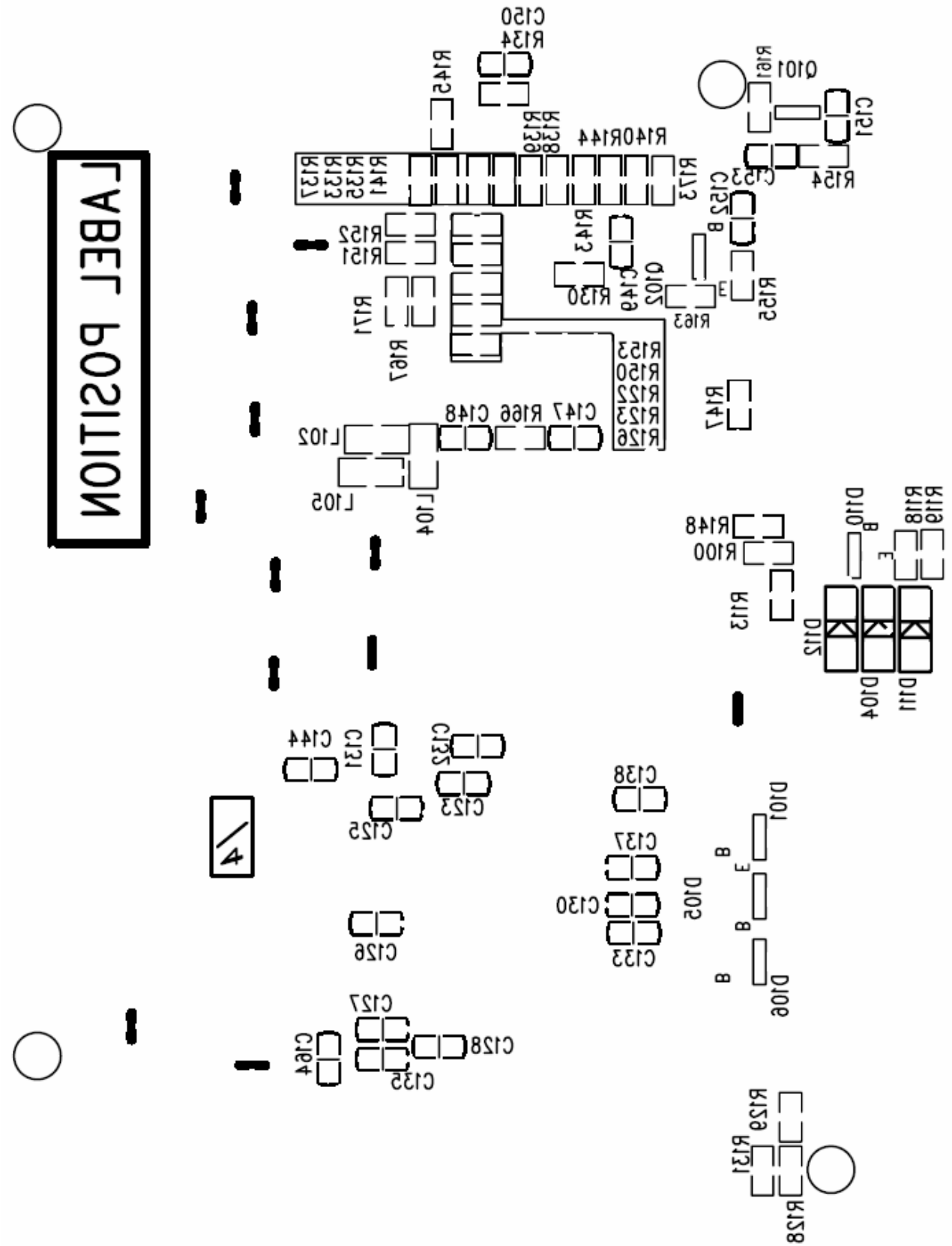


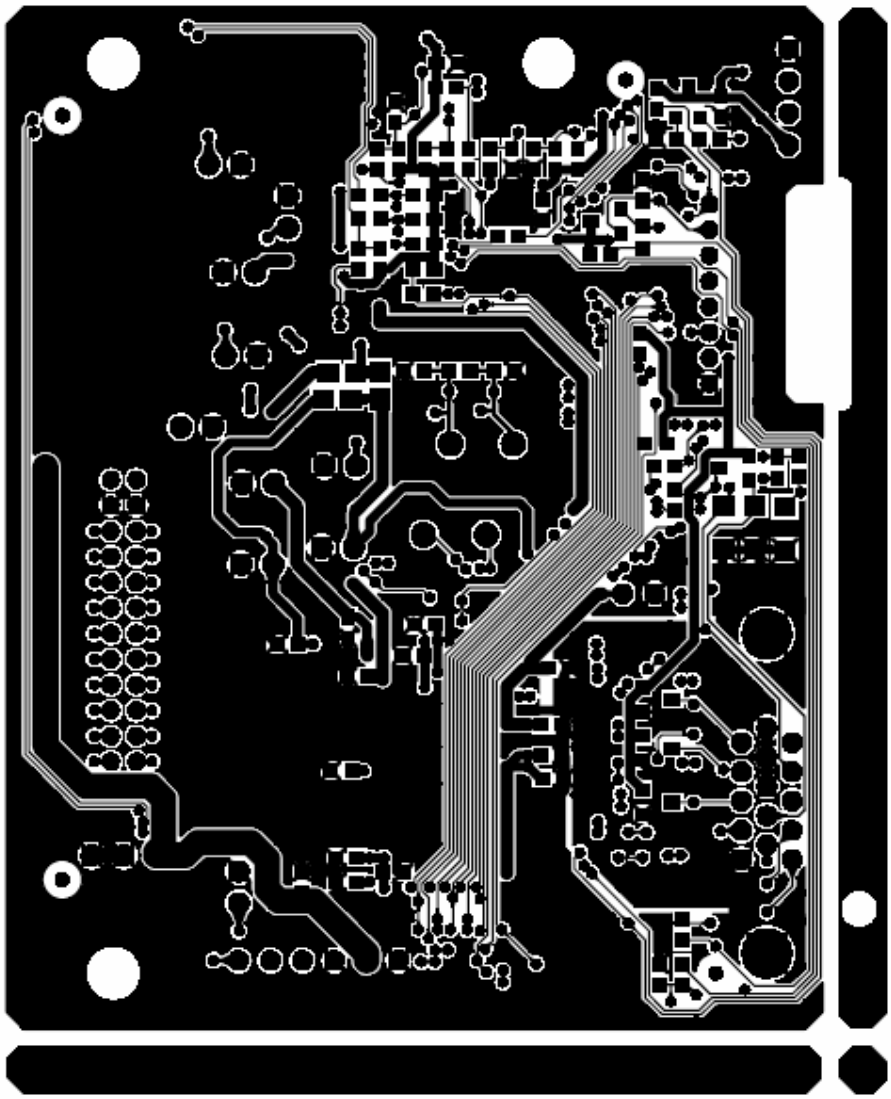
AOC (Top Victory) Electronics Co., Ltd.		
Title: 2. FOR 19"&17" 4 LAMPS INVERTER		
Size	Document Number: PWPC1942SED1(715L-1283-2)	Rev: A
Date: Monday, October 04, 2004	Sheet 2 of 2	

8. PCB Layout

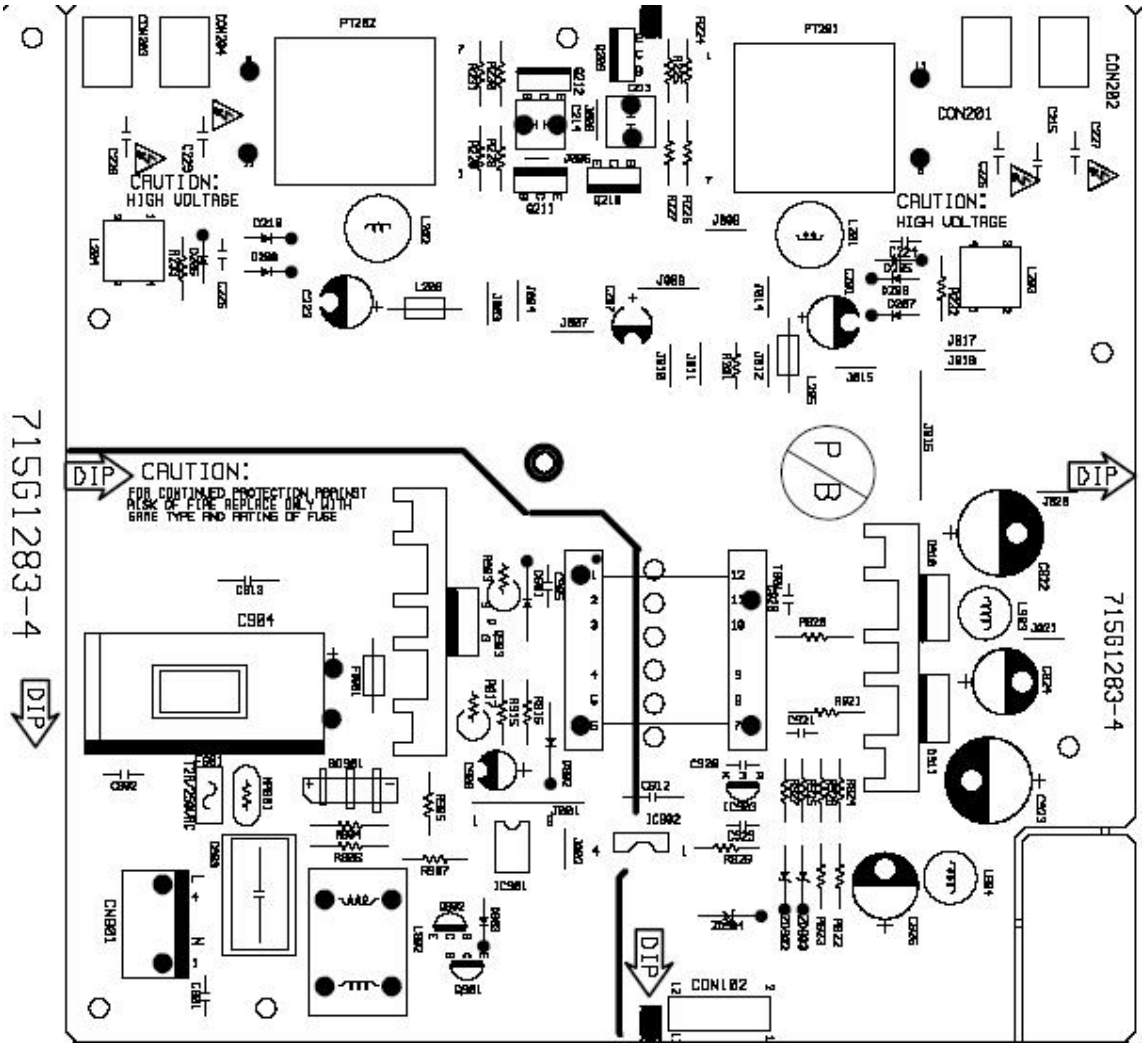
8.1 Main Board



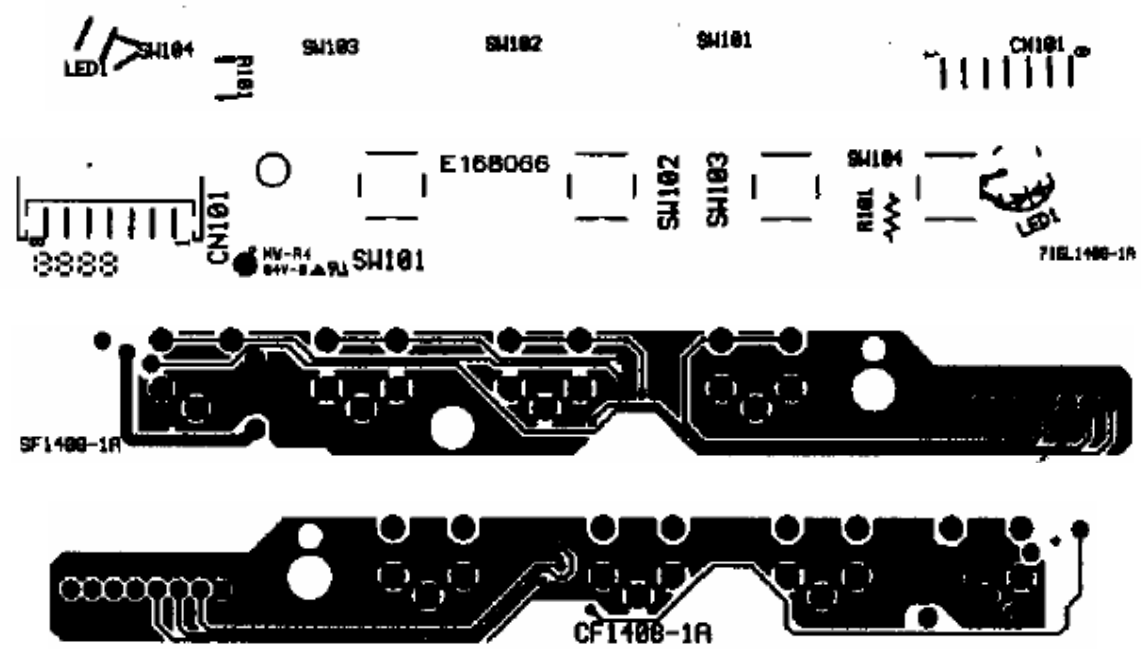




8.2 Inverter/Power Board



8.3 Key Board



9. Maintainability

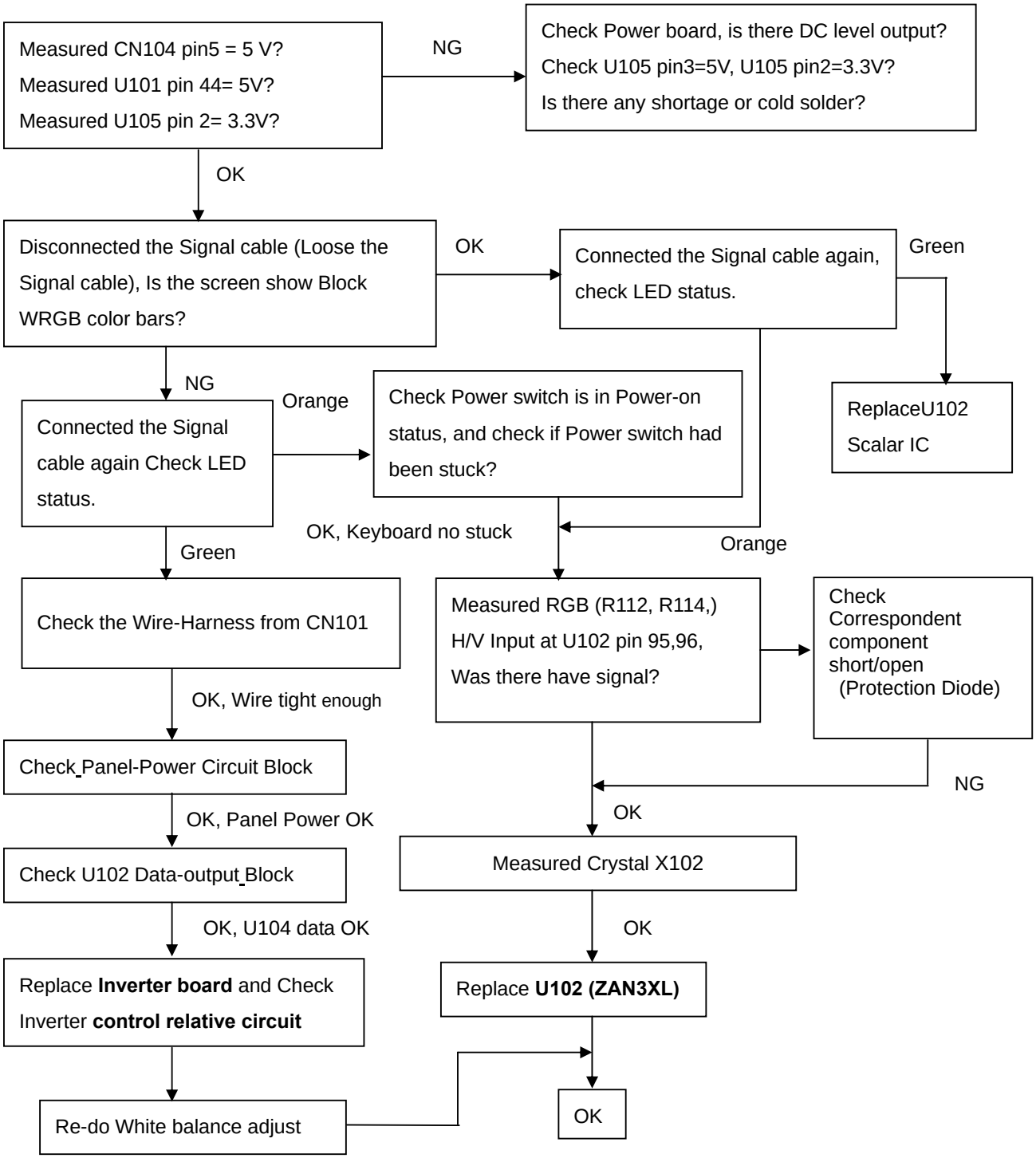
9.1 Equipments and Tools Requirement

1. Voltage meter
2. Oscilloscope
3. Pattern Generator
4. LCD Color Analyzer
5. Service Manual
6. User Manual

9.2 Trouble shooting

9.2.1 Main Board

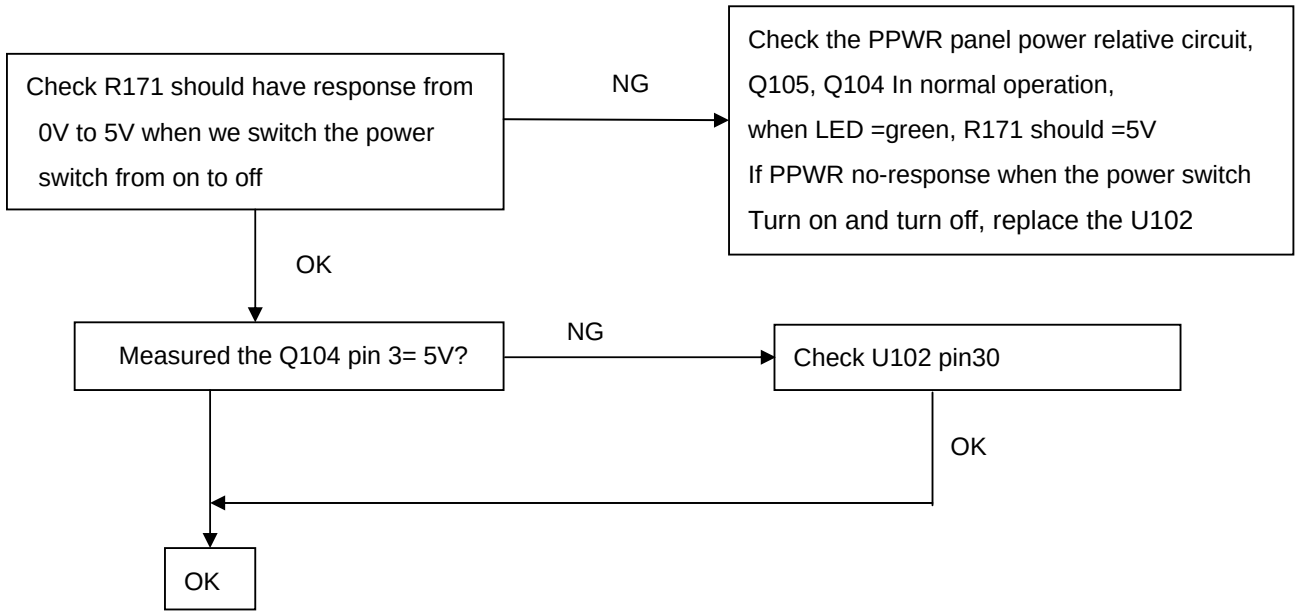
No display



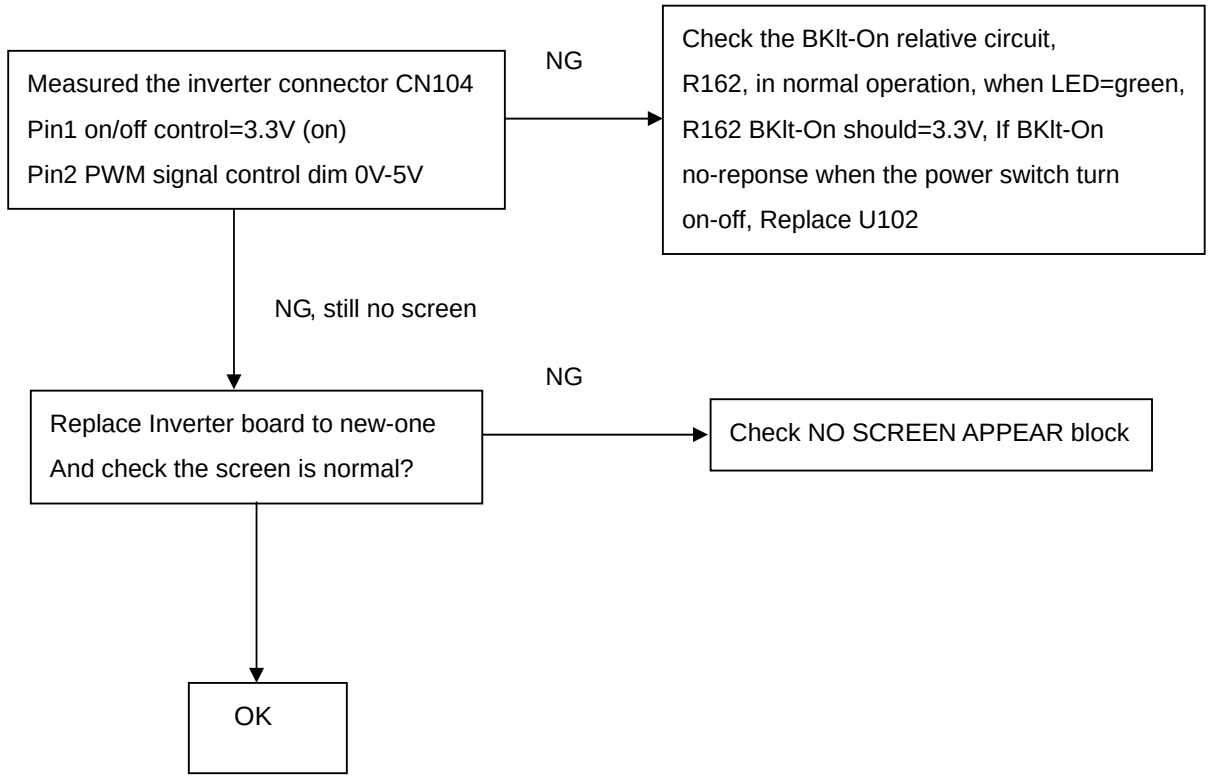
Note: 1. If replace "**Main-Board**", Please re-do "DDC-content" programmed & "White-Balance".

2. If replace "**Power Board**" only, Please re-do " White-Balance"

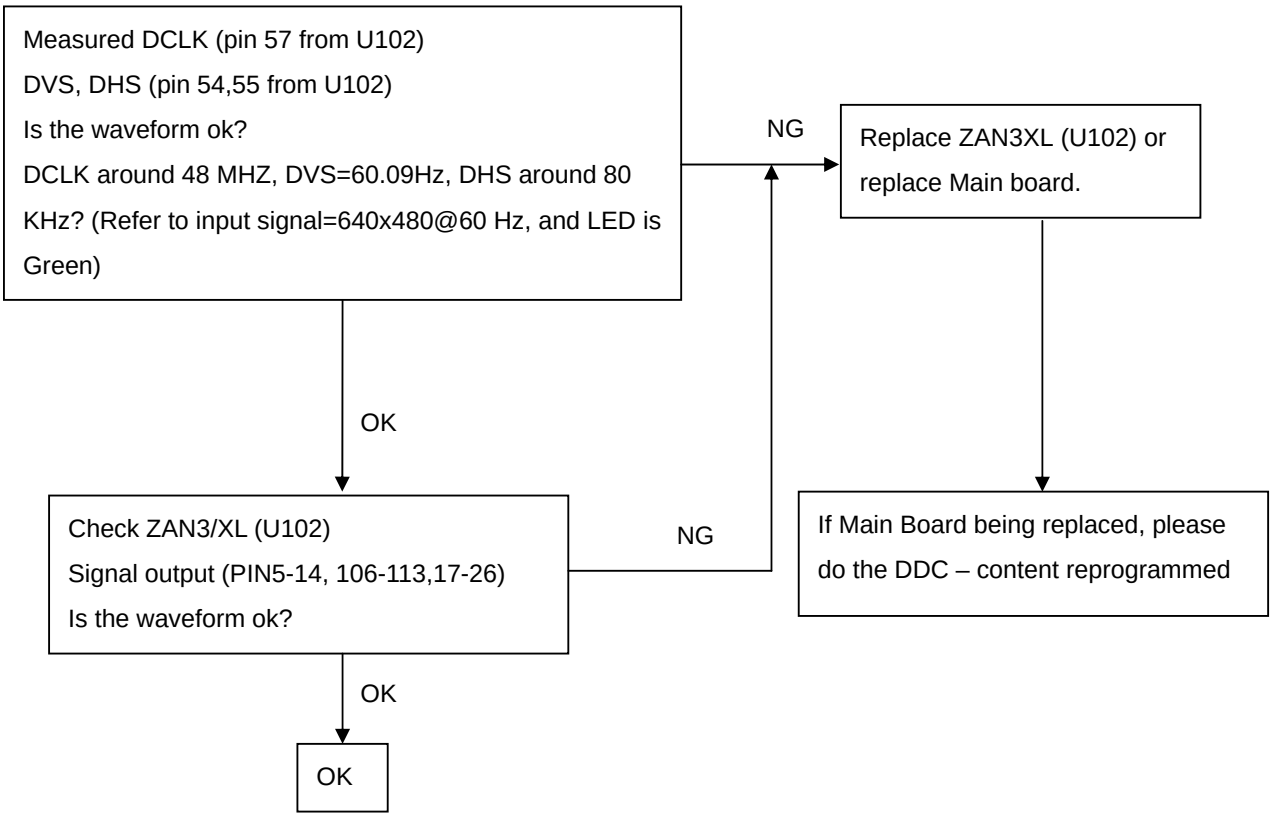
Panel Power Circuit



Inverter Control Relative Circuit

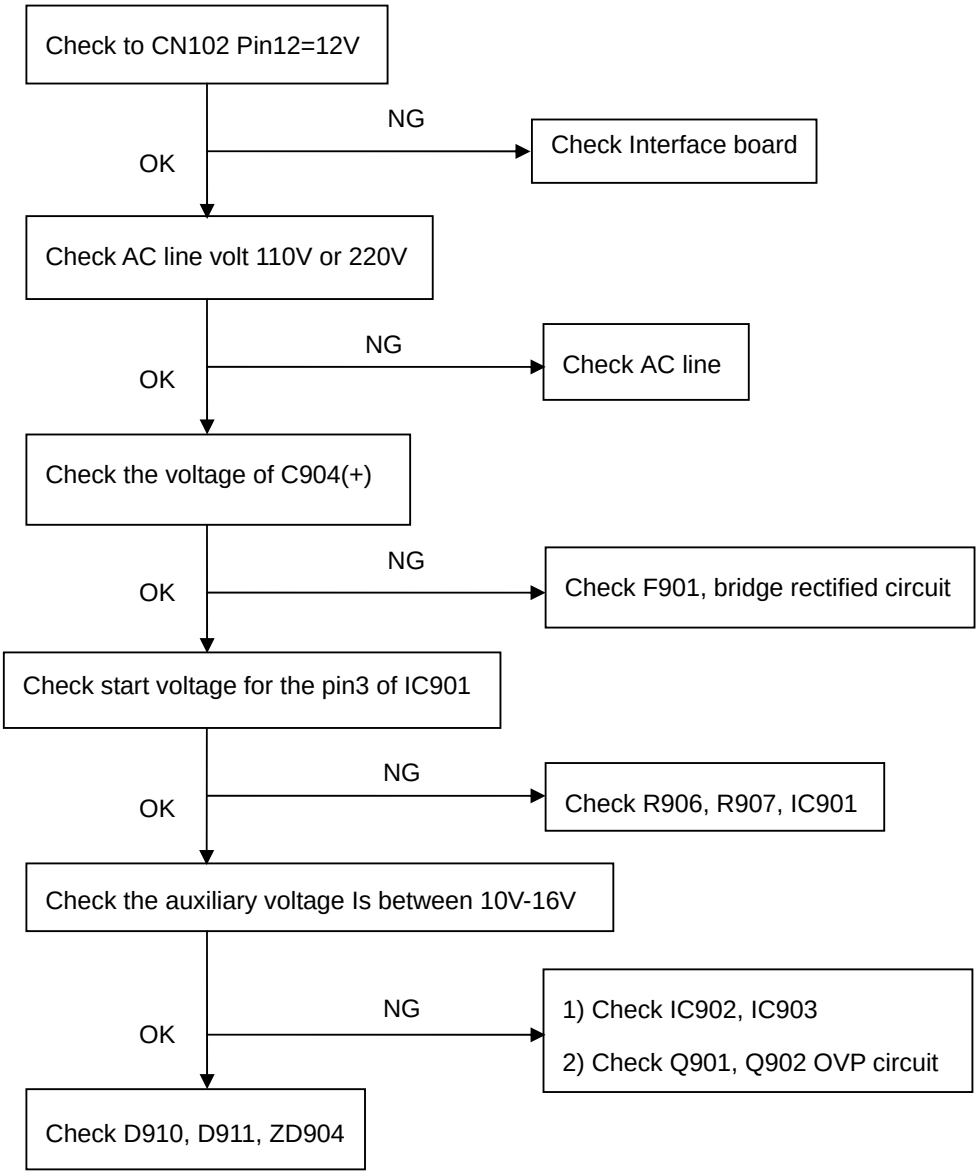


U102-date Output

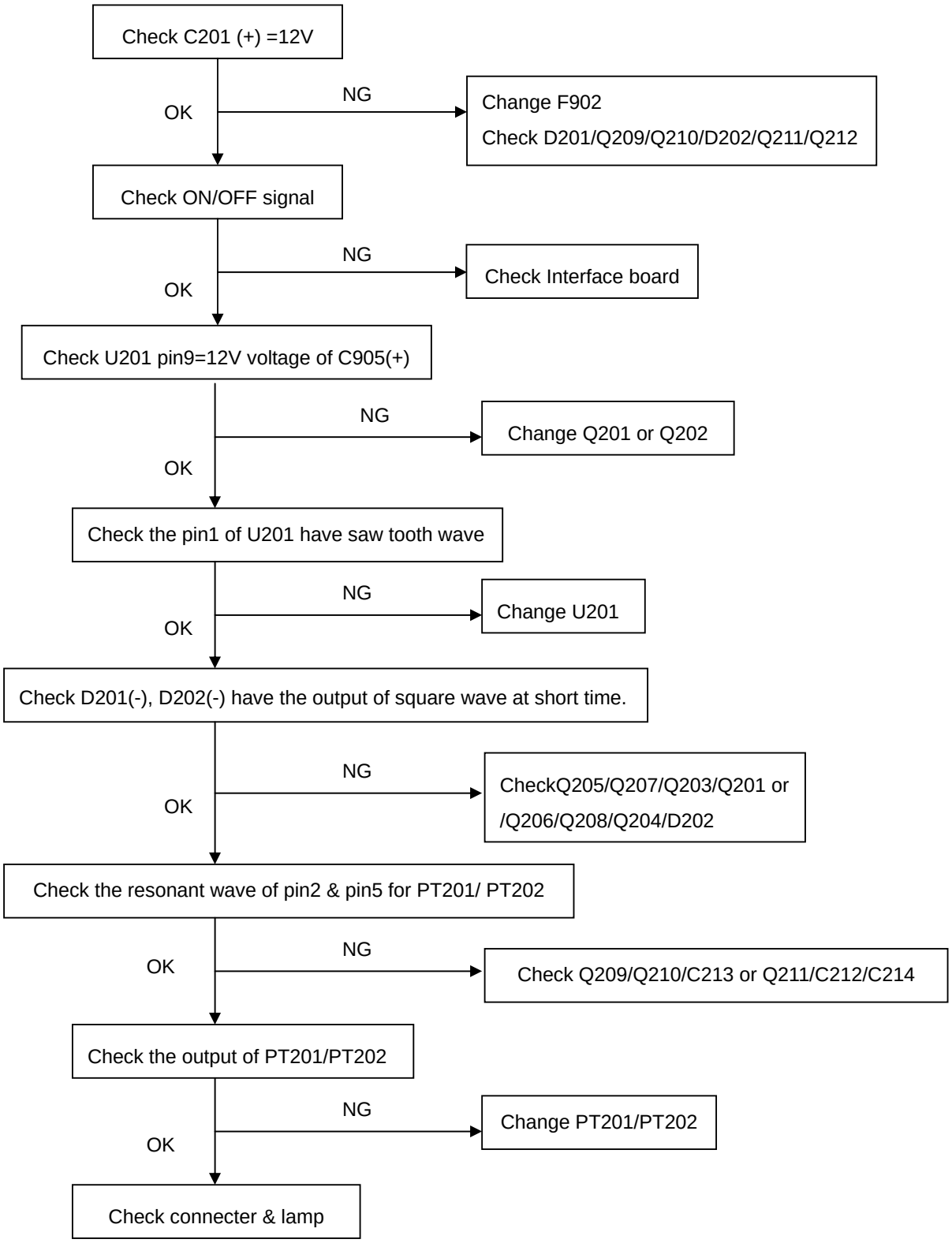


9.2.2 Inverter/Power Board

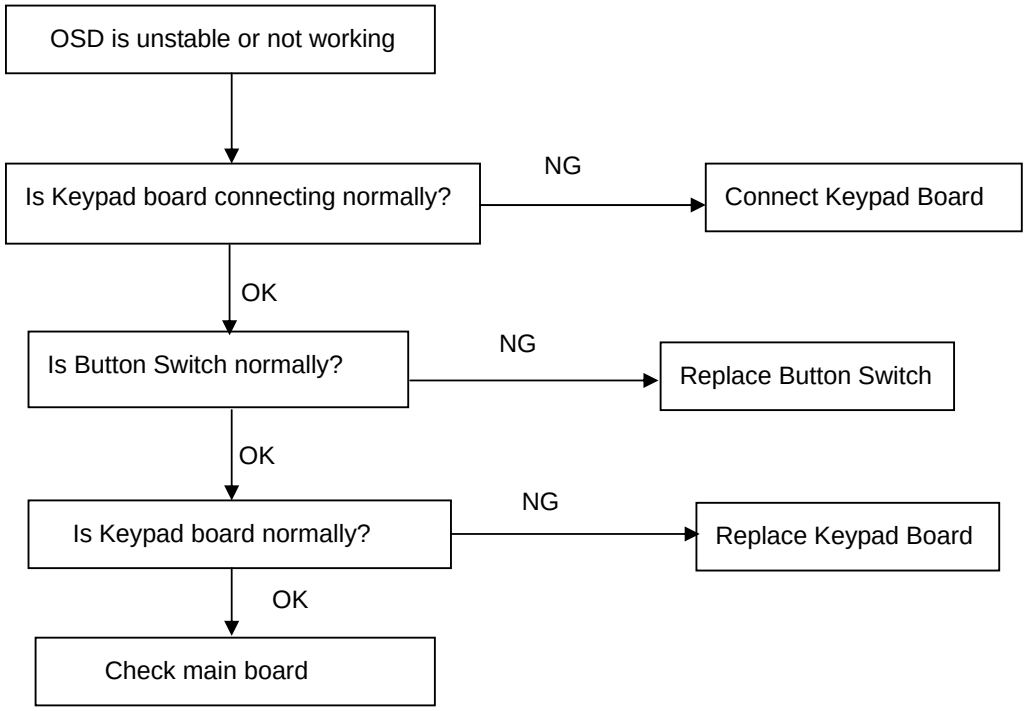
No Power



No Backlight



9.2.3 Key Board



10.White balance, Luminance adjustment

Approximately 2 Hours should be allowed for warm up before proceeding White-Balance adjustment.

Before started adjust white balance, please setting the Chroma-7120 **MEM. Channel 3 to 6500^{0}K** colors, **MEM. Channel 4 to 9300^{0}K** colors, **MEM. Channel 9 to 5700^{0}K** (our 9300 parameter is x = 283 ±28 y =297±28, Y =175 ±20 cd/m^2, 6500 parameter is x = 313 ±28, y = 329 ±28, Y = 180 ±20 cd/m^2, and 5700 parameter is x = 328 ±28, y = 344 ±28, Y = 180 ±20 cd/m^2)

How to setting MEM.channel you can reference to chroma 7120 user guide or simple use " **SC"** key and " **NEXT"** key to modify xyY value and use **"ID"** key to modify the TEXT description Following is the procedure to do white-balance adjust

Press MENU and AUTO-ADJUST button during press Power button will activate the factory mode,

Gain adjustment:

Move cursor to "-Factory Setting-" and press MENU key to enter this sub-menu;

Move cursor to " Factory" and press MENU key;

Move cursor to " Auto Level" and press MENU key to adjust Gain and Offset automatically;

a. Adjust sRGB (6500^{0}K) color-temperature

1. Switch the chroma-7120 to **RGB-mode** (with press "MODE" button)
2. Switch the MEM.channel to Channel 3 (with up or down arrow on chroma 7120)
3. The LCD-indicator on chroma 7120 will show x = 313 ±28, y = 329 ±28, Y = 180 ±20 cd/m^2
4. Adjust the RED on OSD window until chroma 7120 indicator reached the value R=100
5. Adjust the GREEN on OSD, until chroma 7120 indicator reached G=100
6. Adjust the BLUE on OSD, until chroma 7120 indicator reached B=100
7. Repeat above procedure (item 5,6,7) until chroma 7120 RGB value meet the tolerance =100±2

b. Adjust **Color1** (9300^{0}K) color-temperature

8. Switch the chroma-7120 to **RGB-mode** (with press "MODE" button)
9. Switch the MEM.channel to Channel 4 (with up or down arrow on chroma 7120)
10. The LCD-indicator on chroma 7120 will show x = 283 ±28 y =297±28, Y = 175 ±20 cd/m^2
11. Adjust the RED on OSD window until chroma 7120 indicator reached the value R=100
12. Adjust the GREEN on OSD, until chroma 7120 indicator reached G=100
13. Adjust the BLUE on OSD, until chroma 7120 indicator reached B=100
14. Repeat above procedure (item 5,6,7) until chroma 7120 RGB value meet the tolerance =100±2

c. Adjust **Color2** (5700^{0}K) color-temperature

15. Switch the chroma-7120 to **RGB-mode** (with press "MODE" button)
16. Switch the MEM.channel to Channel 9 (with up or down arrow on chroma 7120)
17. The LCD-indicator on chroma 7120 will show x = 328 ±28, y = 344 ±28, Y = 180 ±20 cd/m^2
18. Adjust the RED on OSD window until chroma 7120 indicator reached the value R=100
19. Adjust the GREEN on OSD, until chroma 7120 indicator reached G=100
20. Adjust the BLUE on OSD, until chroma 7120 indicator reached B=100

21. Repeat above procedure (item 5,6,7) until chroma 7120 RGB value meet the tolerance =100±2
22. Move cursor to " Exit/Save" sub-menu and press MENU key to save adjust value and exit.

Turn the POWER-button off to on to quit from factory mode.

Max Brightness measurement:

a. Switch to the full white pattern, in user mode main menu:

1. Set <Color Settings> Red, Green, and Blue to the max.
2. Set <Brightness> Brightness, Contrast to the max.

b. The Minimum brightness is 200cd/m^2 ±20.

11. EDID Content

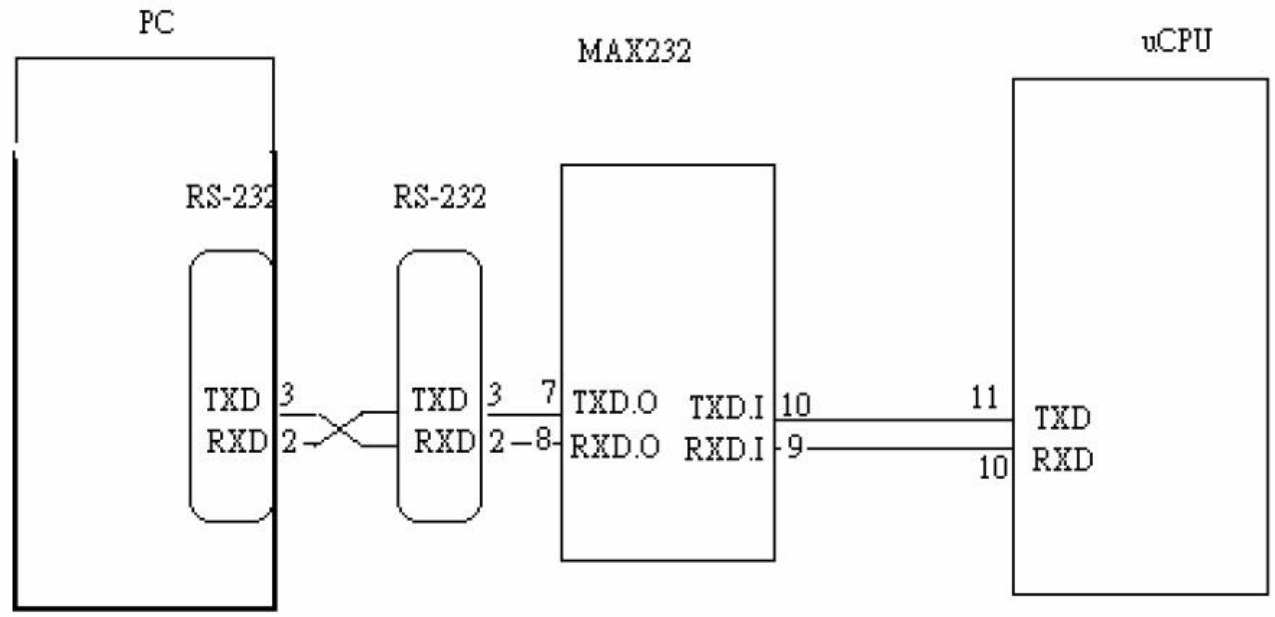
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
0:	00	FF	FF	FF	FF	FF	FF	00	10	AC	0E	70	34	33	32	31
16:	2E	0E	01	03	68	26	1E	78	2E	CE	50	A3	54	4C	99	26
32:	0F	50	54	A5	4B	00	71	4F	81	80	01	01	01	01	01	01
48:	01	01	01	01	01	01	30	2A	00	98	51	00	2A	40	30	70
64:	13	00	78	2D	11	00	00	1E	00	00	00	FF	00	36	34	31
80:	38	30	33	39	46	31	32	33	34	0A	00	00	00	FC	00	44
96:	45	4C	4C	20	45	31	39	33	46	50	63	0A	00	00	00	FD
112:	00	38	4C	1E	51	0E	00	0A	20	20	20	20	20	20	00	3B

Note: Byte 0C, 0D, 0E, 0F means Serial No. Byte 10, 11 means manufacture time. Byte 7F means checksum

12. ISP (In System Program) User Manual

12.1 Connect ISP Writer preparation action

Connect RXD and TXD of PC to RXD (P3.0) and TXD (P3.1) of CPU through RS-232.



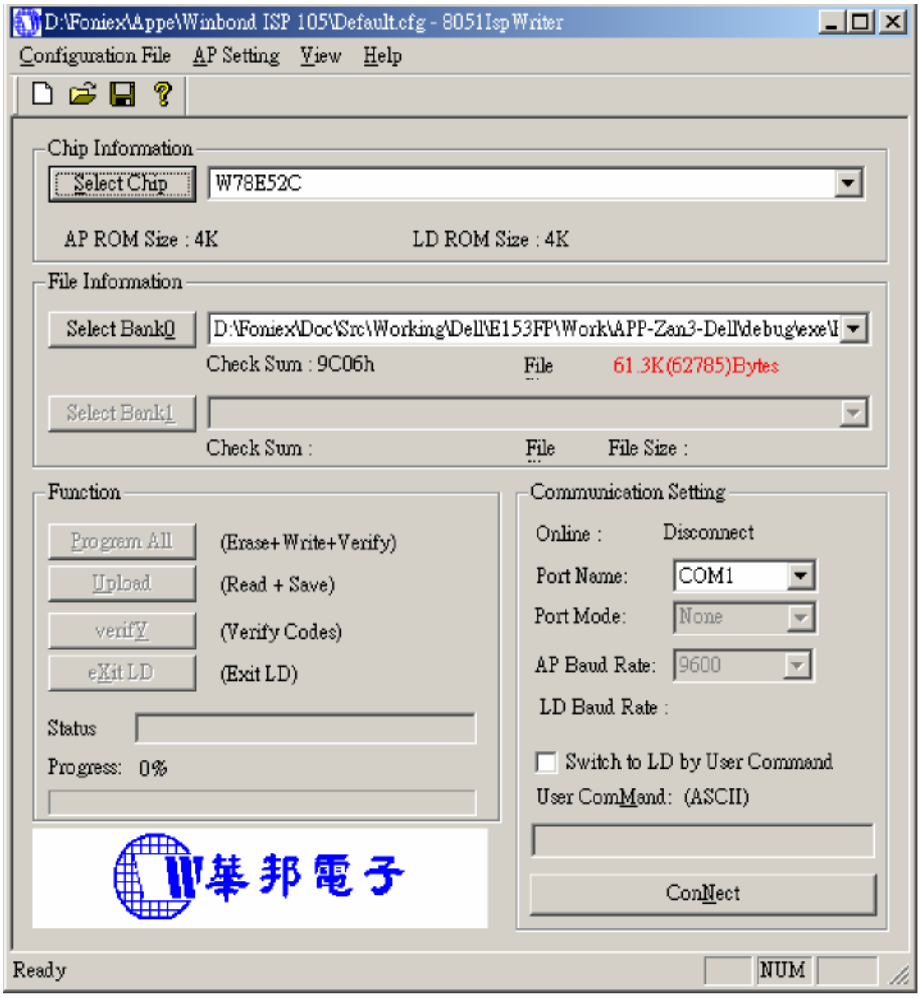
a. There are two ways to entering Reboot Mode. The settings for Reboot Mode is as follow

- Both P2.6 P2.7 are LOW and RESET pin is HIGHT.
- P4.3 is LOW and RESET pin is HIGHT.

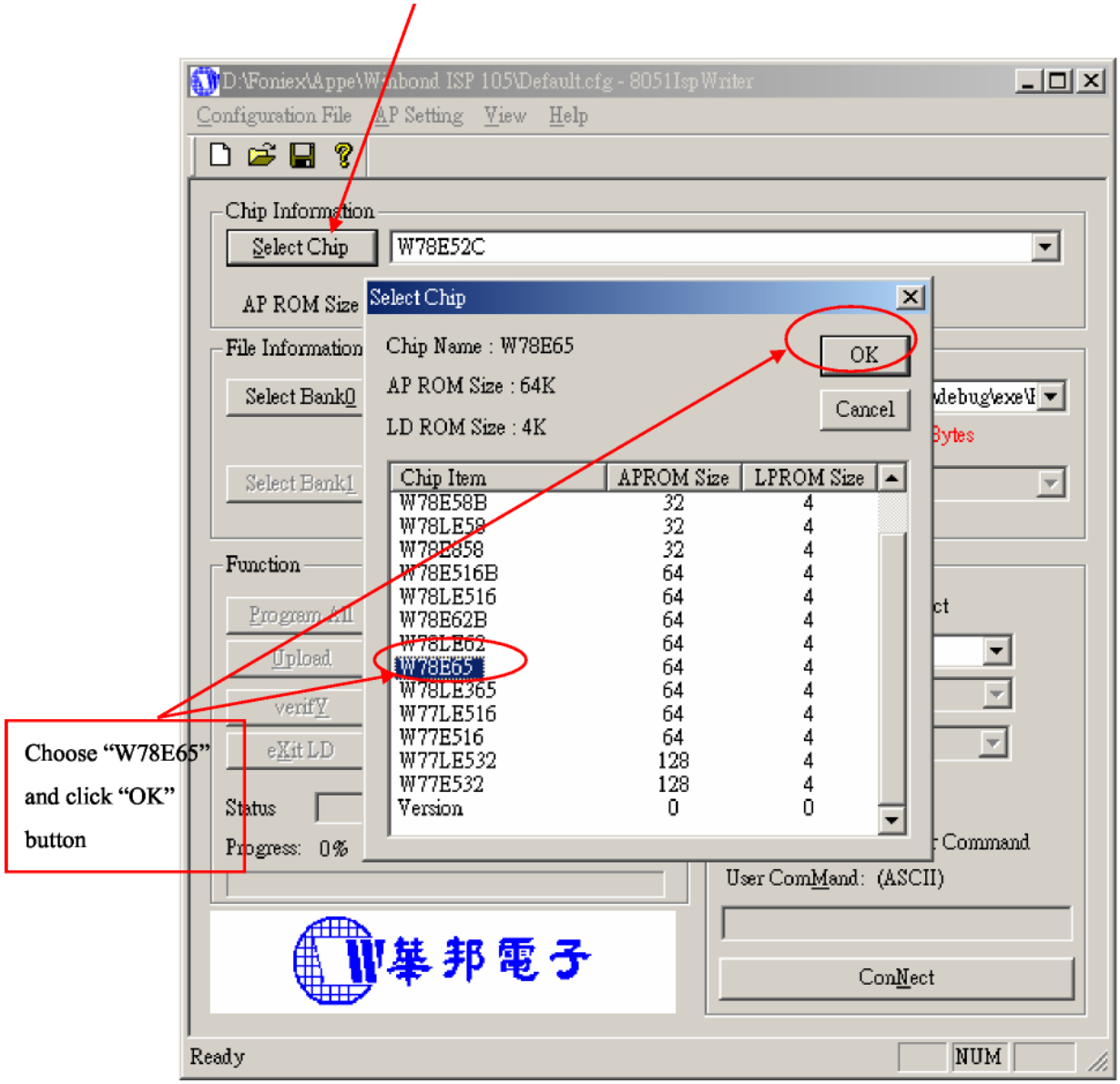
12.2 To Use ISP WRITER (take E153FP for example)

Press the "–" key at front bezel and plug the AC power cord in, then the MCU enter ISP mode;

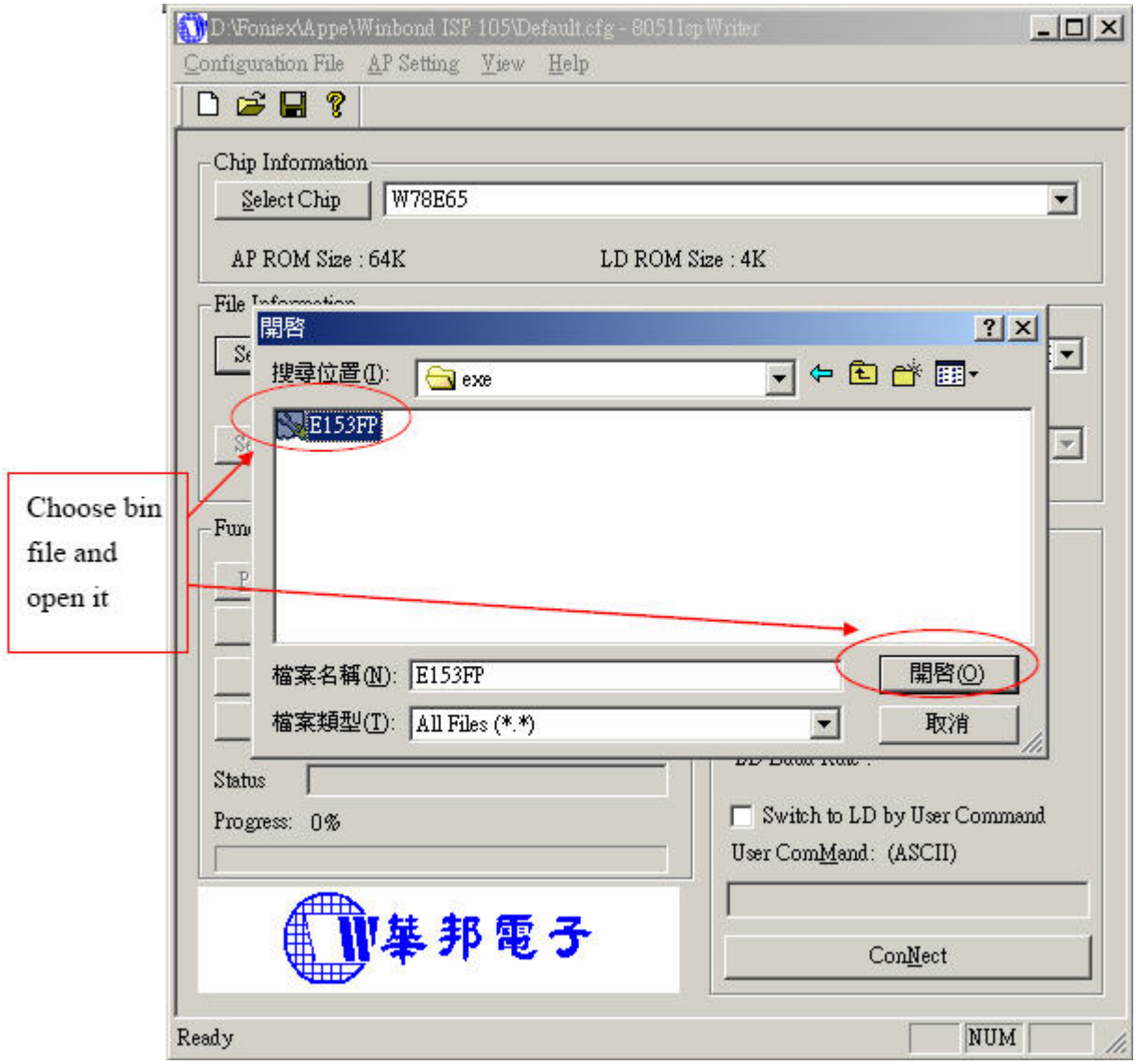
a. You will enter the window as follow after executing the ispwriter.exe file.



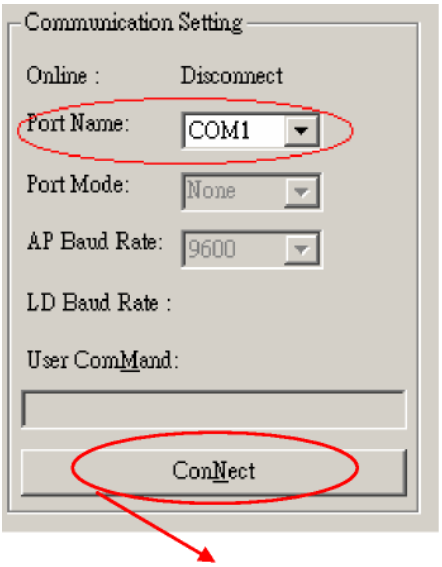
b. Click the “Select Chip” button, and choose the type you’re going to program.



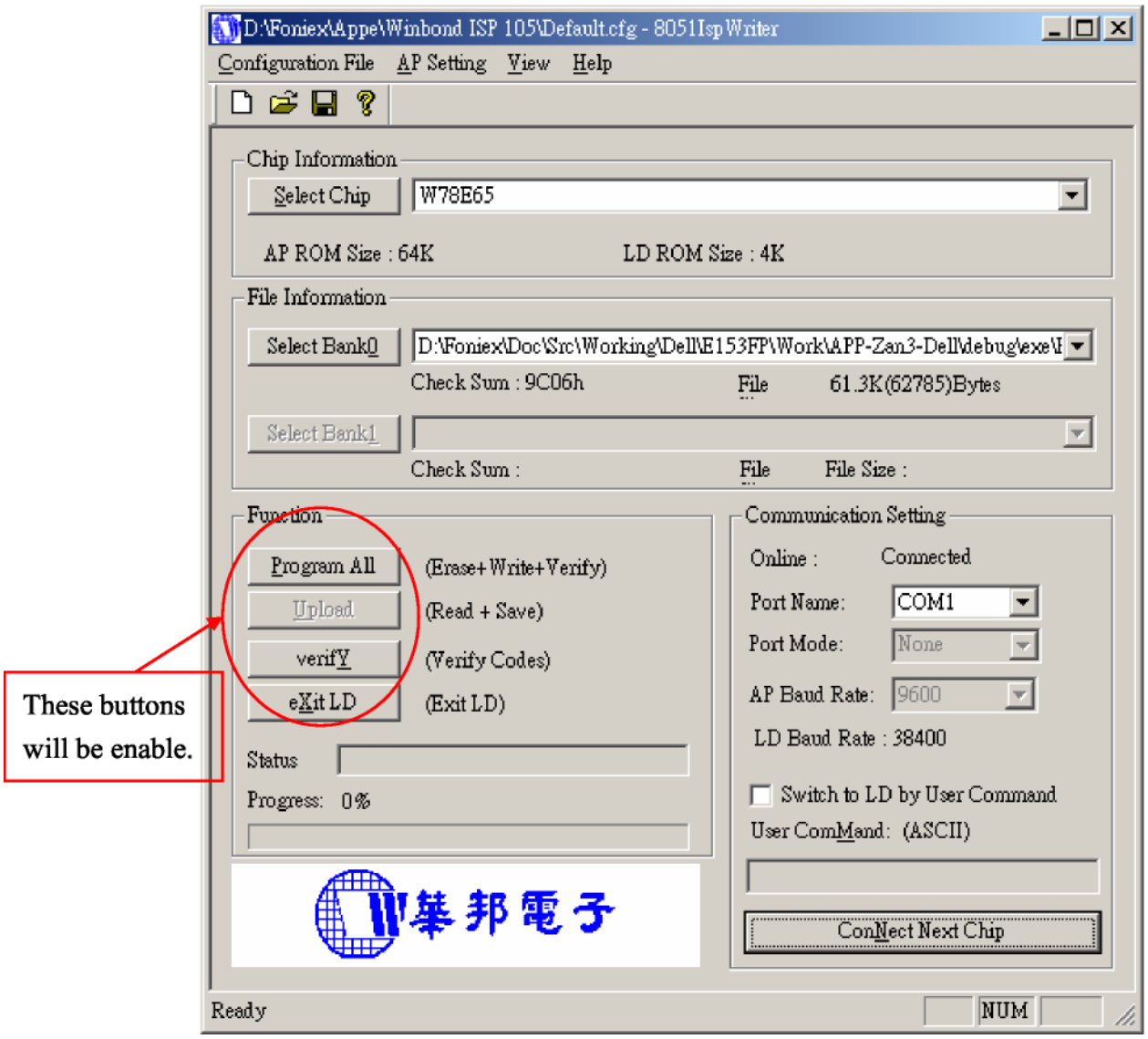
c. Click the “Select Bank0” button and selecting a file which a binary Format required.



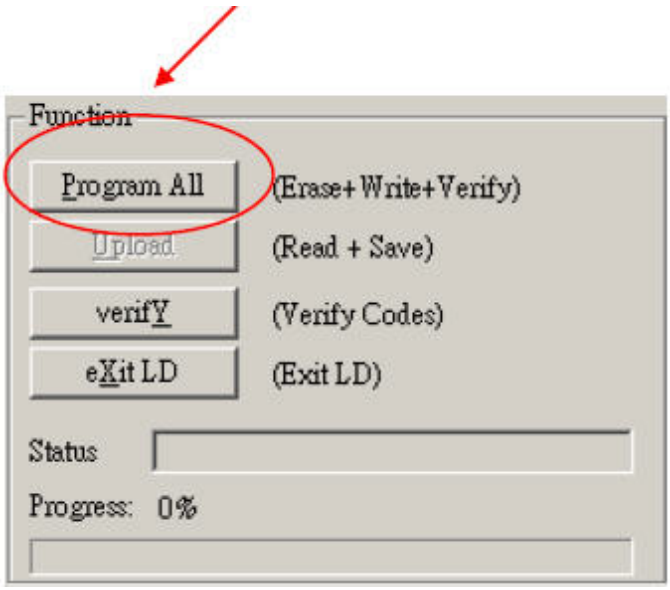
d. Select the communication Setting: Port Name



e. Click the “ConNect” button.

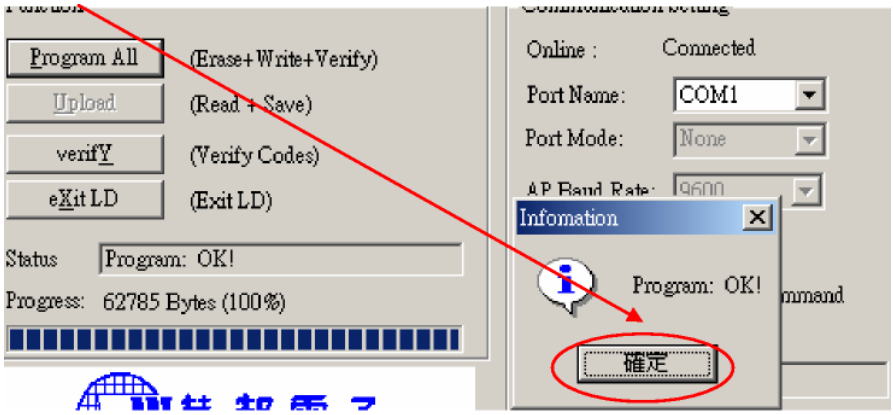


f. Click “Program all” to start programming.

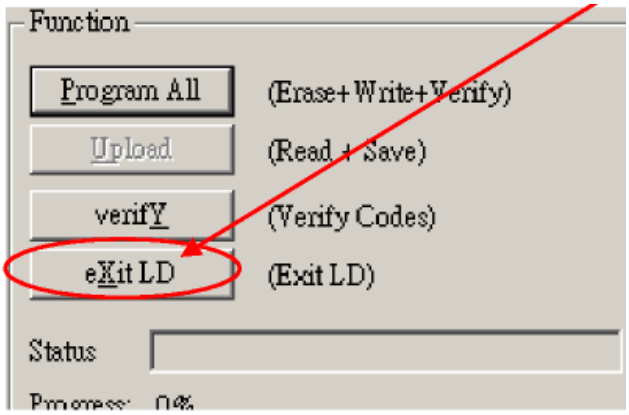


12.3. Executing ISP

a. “Program All” button that will execute erase and program and verify. Then you can get the window as follow, and click “OK” to complete ISP process.



b. Complete the ISP process, click “exit LD” button to reset monitor.



13. BOM List

T980KLLHJ8DMN

Location	Part NO	Description
	M1L 330 4128	SCREW M3X4
	CBPC980KLLDR	CONVERSION BOARD
	KEPC980KED1	KEY BOARD
	PWPC1942LGD1	POWER BOARD
	11L6036 1	SPACER SUPPORT SCC-24
	12L 394 1	FOOT PORON
	15G8140 2	MAINFRAME LG
	15L5689 3 A	GROUND CLAMP
	23L3178700 1A	LOGO
	26G 800700 5B	BARCODE
	33L4669 GV C	POWER BUTTON
	33L4817 GV T	KEYPAD BUTTON
	34L1495AY2 T	BEZEL
	34L1496 Y2 T	REAR COVER
	40G 191700 1	ID LABEL
	40G 581700 3A	CARTON LABEL
	44L3231 15507	EVA WASHER
	44L3923 1	EPS
	44L3923 2	EPS
	44L3923 3EPE	EPE
	44L3923700 1A	CARTON
	45L 88626DE3	PE BAG FOR MONITOR
	52L 1186	SMALL TAPE
	52L 1207 A	ALUMINIUM TAPE
	52L6022 1500	SMALL TAPE
	52L6025 11828	MYLAR
	85L 673 1	SHIELD-INVERTER
	85L6096 1	DIP-EMI
	89L1738GAA 16	SIGNAL CABLE
	89L401A18NHRA	POWER CORD
	95G8018 30594	WIRE HARNESS (TD1?
	M1G2940 10225	SCREW
	M1L 130 6225	SCREW M3X6
	M1L1730 6128	SCREW M3x6
	M1L1740 6128	SCREW
	Q1L 330 8 47	SCREW 3X8mm
	705L 980 87DL2	CN901 ASS'Y

	705L980KB34083	19" COVER ASS'Y
	750LLG90E03 4	LPL 19" (B4KB) PANEL
	40L 457624 1B	CPU LABEL
	AIC980KSLDR	MAIN BOARD
	40L 45762412B	CBPC LABEL
C122	67L309V220 3	22UF +-20% 16V
C129	67L309V220 3	22UF +-20% 16V
C136	67L309V220 3	22UF +-20% 16V
C140	67L309V220 3	22UF +-20% 16V
C143	67L309V220 3	22UF +-20% 16V
C158	67L309V101 3	100UF 16V
C162	67L309V101 3	100UF 16V
C165	67L309V470 3	47UF 16V 85C
C166	67L309V470 3	47UF 16V 85C
C169	67L309V229 7	2.2UF +-20% 50V
C171	67L309V470 3	47UF 16V 85C
C172	67L309V220 3	22UF +-20% 16V
CN100	88L 35315F H	D-SUB 15PIN
CN101	33L3802 8H	WAFER 8P RIGHT ANGLE PI
CN103	33L8027 24 H	CONN W TO B12P*2 P*2.0
CN104	33L8013 6 H	6P PLUG R/A
U101A	56L1125137LD5	W78E65P-40 BY WINBOND
X101	93G 22 53 H	14.31818MHZ/30PF/49US
X102	93G 22 53 H	14.31818MHZ/30PF/49US
	715L1280 E	PCB
C104	65L0603473 32	CHIP 0.047UF 50V X7R
C106	65L0603473 32	CHIP 0.047UF 50V X7R
C108	65L0603473 32	CHIP 0.047UF 50V X7R
C112	65L0603473 32	CHIP 0.047UF 50V X7R
C113	65L0603473 32	CHIP 0.047UF 50V X7R
C114	65L0603473 32	CHIP 0.047UF 50V X7R
C119	65L0603104 12	0.1UF +-10% 16V X7R
C123	65L0603104 12	0.1UF +-10% 16V X7R
C124	65L0603104 12	0.1UF +-10% 16V X7R
C125	65L0603104 12	0.1UF +-10% 16V X7R
C126	65L0603104 12	0.1UF +-10% 16V X7R
C127	65L0603104 12	0.1UF +-10% 16V X7R
C128	65L0603104 12	0.1UF +-10% 16V X7R
C130	65L0603104 12	0.1UF +-10% 16V X7R
C131	65L0603104 12	0.1UF +-10% 16V X7R

C132	65L0603104 12	0.1UF +-10% 16V X7R
C133	65L0603104 12	0.1UF +-10% 16V X7R
C134	65L0603104 12	0.1UF +-10% 16V X7R
C135	65L0603104 12	0.1UF +-10% 16V X7R
C137	65L0603104 12	0.1UF +-10% 16V X7R
C138	65L0603104 12	0.1UF +-10% 16V X7R
C139	65L0603104 12	0.1UF +-10% 16V X7R
C141	65L0603104 12	0.1UF +-10% 16V X7R
C142	65L0603104 12	0.1UF +-10% 16V X7R
C144	65L0603104 12	0.1UF +-10% 16V X7R
C145	65L0603104 12	0.1UF +-10% 16V X7R
C147	65L0603220 31	CHIP 22PF 50V NPO
C148	65L0603220 31	CHIP 22PF 50V NPO
C149	65L0603104 12	0.1UF +-10% 16V X7R
C150	65L0603104 12	0.1UF +-10% 16V X7R
C152	65L0603102 32	1000PF +-10% 50V X7R
C153	65L0603102 32	1000PF +-10% 50V X7R
C154	65L0603102 32	1000PF +-10% 50V X7R
C155	65L0603102 32	1000PF +-10% 50V X7R
C156	65L0603102 32	1000PF +-10% 50V X7R
C157	65L0603102 32	1000PF +-10% 50V X7R
C159	65L0603104 12	0.1UF +-10% 16V X7R
C163	65L0603104 12	0.1UF +-10% 16V X7R
C164	65L0603104 12	0.1UF +-10% 16V X7R
C167	65L0603104 12	0.1UF +-10% 16V X7R
C168	65L0603104 12	0.1UF +-10% 16V X7R
C173	65L0603104 12	0.1UF +-10% 16V X7R
C174	65L0603104 12	0.1UF +-10% 16V X7R
C175	65L0603104 12	0.1UF +-10% 16V X7R
C176	65L0603220 31	CHIP 22PF 50V NPO
C177	65L0603220 31	CHIP 22PF 50V NPO
D101	93G 6433P	BAV99
D102	93L 39146	LL5232B SMT
D103	93L 39146	LL5232B SMT
D104	93L 39146	LL5232B SMT
D105	93G 6433P	BAV99
D106	93G 6433P	BAV99
D107	93L 39146	LL5232B SMT
D108	93L 39146	LL5232B SMT
D109	93L 39146	LL5232B SMT

D110	93L 64 42 P	BAV70 SOT-23
D111	93L 39146	LL5232B SMT
D112	93L 39146	LL5232B SMT
FB101	61L0603220	CHIPR 22 OHM+-5% 1/10W
FB102	61L0603220	CHIPR 22 OHM+-5% 1/10W
FB103	61L0603220	CHIPR 22 OHM+-5% 1/10W
FB104	61L0603000	CHIPR 0OHM +-5% 1/10W
FB105	71L 56K121 M	CHIP BEAD
L101	71L 56K121 M	CHIP BEAD
L102	71L 56K121 M	CHIP BEAD
L103	71L 56K121 M	CHIP BEAD
L104	71L 56K121 M	CHIP BEAD
L105	71L 56K121 M	CHIP BEAD
L106	71L 56K121 M	CHIP BEAD
Q101	57G 417 4	PMBS3904/PHILIPS-SMT(04
Q102	57G 417 4	PMBS3904/PHILIPS-SMT(04
Q104	57L 763 1	A03401 SOT23 BY AOS(A1)
Q105	57G 417 4	PMBS3904/PHILIPS-SMT(04
R101	71L 59Q101	CHIP BEAD 100 OHM
R102	61L0603101	CHIPR 100 OHM +-5% 1/10
R104	71L 59Q101	CHIP BEAD 100 OHM
R105	71L 59Q101	CHIP BEAD 100 OHM
R106	61L0603750 9F	75OHM 1% 1/10W
R107	61L0603750 9F	75OHM 1% 1/10W
R108	61L0603750 9F	75OHM 1% 1/10W
R109	61L0603101	CHIPR 100 OHM +-5% 1/10
R110	61L0603101	CHIPR 100 OHM +-5% 1/10
R111	61L0603101	CHIPR 100 OHM +-5% 1/10
R112	61L0603470	CHIPR 47 OHM +-5% 1/10W
R114	61L0603470	CHIPR 47 OHM +-5% 1/10W
R115	61L0603222	CHIPR 2.2K OHM+-5% 1/10
R116	61L0603222	CHIPR 2.2K OHM+-5% 1/10
R117	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R118	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R119	61L0603101	CHIPR 100 OHM +-5% 1/10
R120	61L0603101	CHIPR 100 OHM +-5% 1/10
R122	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R123	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R125	61L0603101	CHIPR 100 OHM +-5% 1/10
R126	61L0603101	CHIPR 100 OHM +-5% 1/10

R127	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R128	61L0603101	CHIPR 100 OHM +-5% 1/10
R129	61L0603101	CHIPR 100 OHM +-5% 1/10
R130	61L0603101	CHIPR 100 OHM +-5% 1/10
R131	61L0603272	CHIP 2.7K OHM 1/10W
R132	61L0603272	CHIP 2.7K OHM 1/10W
R133	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R134	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R135	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R137	61L0603101	CHIPR 100 OHM +-5% 1/10
R139	61L0603101	CHIPR 100 OHM +-5% 1/10
R141	61L0603101	CHIPR 100 OHM +-5% 1/10
R142	61L0603000	CHIPR 0OHM +-5% 1/10W
R143	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R144	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R146	61L0603000	CHIPR 0OHM +-5% 1/10W
R147	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R148	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R154	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R155	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R156	61L0603473	CHIP 47K OHM 1/10W
R157	61L0603221	CHIPR 220 OHM+-5% 1/10W
R158	61L0603221	CHIPR 220 OHM+-5% 1/10W
R159	61L0603221	CHIPR 220 OHM+-5% 1/10W
R160	61L0603221	CHIPR 220 OHM+-5% 1/10W
R161	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R162	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R163	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R164	61L0603102	CHIPR 1K OHM +-5% 1/10W
R165	61L0603102	CHIPR 1K OHM +-5% 1/10W
R168	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R169	61L0603000	CHIPR 0OHM +-5% 1/10W
R171	61L0603104	CHIPR 100K OHM +-5% 1/1
R172	61L1206331	CHIP 330OHM 5% 1/4W
R173	61L0603472	CHIPR 4.7K OHM +-5% 1/1
RP103	61L 125472 8	CHIP AR 8P4R 4.7K OHM+-
U101	87L 202 44	PLCC SMT CONN PD41C-441
U102	56L 562 58	GMZAN3/SL (AC)
U103	56L1133 34	M24C02-WMN6T SMT
U104	56L1133 56	M24C16-WMN6T/W SO-8

U105	56L 585 4	AIC1117-33CY
U106	56G 563 27	AIC1117A-18CY SOT-223
	715L1408 1	PCB
CN101	95G8014 8 21	WIRE HARNESS
LED1	81L 12 1A GP	LED
R101	61L 60210152T	100OHM +- 5% 1/6W
SW101	77L 600 4 HJ	TACT SWITCH TSPE-1
SW102	77L 600 4 HJ	TACT SWITCH TSPE-1
SW103	77L 600 4 HJ	TACT SWITCH TSPE-1
SW104	77L 600 4 HJ	TACT SWITCH TSPE-1
	PW1942LGD1SMT	POWER BOARD FOR SMT
	40L 45762420A	ID LABEL
	71L 55 2 A	FERRITE BEAD 6.5*5*1.7
	705L 560 57 DL	D910/D911 ASS'Y
	705L 560 61 06	R903 ASS'Y
	705L 780 57 DL	Q903 ASS'Y
	705L 780 61 07	R917 ASS'Y
	705L1742 HL	BD901/C903/IC901 ASS'Y
C213	63L210J1842A2	PMS 0.18UF 250V
C214	63L210J1842A2	PMS 0.18UF 250V
C226	65L 3J2206ET	22PF 5% 3KV TDK
C227	65L 3J2206ET	22PF 5% 3KV TDK
C228	65L 3J2206ET	22PF 5% 3KV TDK
C229	65L 3J2206ET	22PF 5% 3KV TDK
C901	65L305M2222EM	2200PF+-20% 250VAC/400V
C902	65L305M2222EM	2200PF+-20% 250VAC/400V
C904	67L215S10115K	100UF 450V
C913	65L306M3322F2	3300PF +-20% 400VAC Y1
C922	67L215L102 4N	KY25VB1000M-L 12.5*20
C923	67L215C102 3H	EC LESR 1000UF16V HERME
CN901	33G8029 4A	PLUG
CON102	95G8014 6 19	WIRE HARNESS
CON201	33L8021 2D AC	CONN.2P R/A 87210-0236
CON202	33L8021 2D AC	CONN.2P R/A 87210-0236
CON203	33L8021 2D AC	CONN.2P R/A 87210-0236
CON204	33L8021 2D AC	CONN.2P R/A 87210-0236
IC902	56L 139 3B	PC123 Y82
L201	73G 253139 HA	CHOKE COIL
L202	73G 253139 HA	CHOKE COIL
L203	73L 174 30YSA	FILTER

L204	73L 174 30YSA	FILTER
L902	73L 174 40 LS	LINE FILTER
L903	73L 253 91 LS	CHOKE BY LI SHIN
L904	73L 253 91 LS	CHOKE BY LI SHIN
NR901	61L 58120 WT	NTCR 12OHM 20% 2A SCK-1
PT201	80LL15T 7YSG	X'FMR
PT202	80LL15T 7YSG	X'FMR
Q209	57G 761 6	2SC5706-P-E
Q210	57G 761 6	2SC5706-P-E
Q211	57G 761 6	2SC5706-P-E
Q212	57G 761 6	2SC5706-P-E
T901	80LL17T 2 T	X'FMR
	PW1942LGD1AI	POWER BOARD FOR AI
C202	65L0805104 22	0.1UF +-10% 25V X7R 080
C203	65L0805105 22	CHIP 1UF 25V X7R 0805
C204	65L0805104 22	0.1UF +-10% 25V X7R 080
C205	65L0805104 22	0.1UF +-10% 25V X7R 080
C206	65L0805104 22	0.1UF +-10% 25V X7R 080
C208	65L0805331 31	CHIP 330pF 50V NPO
C209	65L0805105 22	CHIP 1UF 25V X7R 0805
C210	65L0805105 22	CHIP 1UF 25V X7R 0805
C211	65L0805105 22	CHIP 1UF 25V X7R 0805
C212	65L0805105 22	CHIP 1UF 25V X7R 0805
C219	65L0805105 22	CHIP 1UF 25V X7R 0805
C220	65L0805105 22	CHIP 1UF 25V X7R 0805
C221	65L0805474 22	CHIP 0.47UF 25V X7R 080
C222	65L0805474 22	CHIP 0.47UF 25V X7R 080
C230	65L0805102 32	CHIP 1000P 50VX7R 0805
C231	65L0805102 32	CHIP 1000P 50VX7R 0805
C907	65L0805104 32	CHIP 0.1UF 50V X7R
C908	65L0805104 32	CHIP 0.1UF 50V X7R
C909	65L0805104 32	CHIP 0.1UF 50V X7R
C910	65L0805102 32	CHIP 1000P 50VX7R 0805
C911	65L0805471 21	CHIP 470PF 25V NPO
C926	65L0805104 32	CHIP 0.1UF 50V X7R
C927	65L0805104 32	CHIP 0.1UF 50V X7R
C930	65L0805102 32	CHIP 1000P 50VX7R 0805
C931	65L0805102 32	CHIP 1000P 50VX7R 0805
D201	93G3004 2	SR34 PAN JIT
D202	93G2004 2A	SM240A DO-214AC

D203	93G 39S 3 T	BZT52-C11
D204	93G 39S 3 T	BZT52-C11
F201	61L1206000	CHIPR 0 OHM +-5% 1/4W
Q201	57G 760 5B	PDTC144WK SOT346
Q202	57G 760 4B	PDTA144WK SOT346
Q203	57L 763 3	AO4411 SO-8 BY AOS SMT
Q204	57L 763 3	AO4411 SO-8 BY AOS SMT
Q205	57G 417 4	PMBS3904/PHILIPS-SMT(04
Q206	57G 417 4	PMBS3904/PHILIPS-SMT(04
Q207	57G 417 6	PMBS3906/PHILIPS-SMT(06
Q208	57G 417 6	PMBS3906/PHILIPS-SMT(06
R202	61L0603512	CHIP 5.1K OHM 1/10W
R203	61L0603512	CHIP 5.1K OHM 1/10W
R204	61L0603103	CHIPR 10K OHM +-5% 1/10
R205	61L0603683	CHIP 68K OHM 1/10W
R206	61L0603683	CHIP 68K OHM 1/10W
R208	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R209	61L0603472	CHIPR 4.7K OHM +-5% 1/1
R210	61L0603123	CHIP 12K OHM 1/10W
R211	61L0603123	CHIP 12K OHM 1/10W
R212	61L0603392	CHIP 3.9K OHM 1/10W
R213	61L0603392	CHIP 3.9K OHM 1/10W
R214	61L0603392	CHIP 3.9K OHM 1/10W
R215	61L0603392	CHIP 3.9K OHM 1/10W
R216	61L0603221	CHIPR 220 OHM+-5% 1/10W
R217	61L0603221	CHIPR 220 OHM+-5% 1/10W
R218	61L0603471	CHIPR 470 OHM+-5% 1/10W
R219	61L0603471	CHIPR 470 OHM+-5% 1/10W
R220	61L0603153	CHIPR 15KOHM+-5% 1/10W
R221	61L0603153	CHIPR 15KOHM+-5% 1/10W
R222	61L0603123	CHIP 12K OHM 1/10W
R223	61L0603123	CHIP 12K OHM 1/10W
R234	61L0603621	CHIPR 620 OHM+-5% 1/10W
R235	61L0603621	CHIPR 620 OHM+-5% 1/10W
R236	61L0603471	CHIPR 470 OHM+-5% 1/10W
R237	61L0603471	CHIPR 470 OHM+-5% 1/10W
R238	61L0603123	CHIP 12K OHM 1/10W
R239	61L0603123	CHIP 12K OHM 1/10W
R240	61L0603513	CHIP 51K OHM 1/10W
R241	61L0603513	CHIP 51K OHM 1/10W

R901	61L1206105	CHIP 1MOHM 5% 1/4W
R902	61L1206105	CHIP 1MOHM 5% 1/4W
R908	61L1206519	CHIPR 5.1OHM +-5% 1/4W
R909	61L1206472	CHIP 4.7KOHM 5% 1/4W
R910	61L1206472	CHIP 4.7KOHM 5% 1/4W
R911	61L1206472	CHIP 4.7KOHM 5% 1/4W
R912	61L1206101	CHIP 100 OHM 5% 1/4W
R913	61L1206103	CHIP 10KOHM 5% 1/4W
R914	61L1206243	CHIP 24K OHM 5% 1/4W
R928	61L1206102	CHIP 1K OHM 5% 1/4W
U201	56L 608 1	TL1451ACD
ZD901	93G 39S 23 T	GLZ22B
ZD904	93L 39S 19 T	PTZ7.5B
	715L1283 4	PCB
C201	67L215C1514HT	LOW ESR 150UF 25V 8*7MM
C207	67L 305330 7T	33UF 105
C213	6L 31502	1.5MM RIVET
C214	6L 31502	1.5MM RIVET
C223	67L215C1514HT	LOW ESR 150UF 25V 8*7MM
C904	6L 31502	1.5MM RIVET
C905	65L 2K152 1T6921	1.5NF/2KV Y5P +-10%
C906	67L 305220 7T	22UF +-20% 50V
C920	65L517K102 5T	1000PF 10% Y5P 500V
C921	65L517K102 5T	1000PF 10% Y5P 500V
C924	67L215B4713HT	470UF 16V LTR471M1CF11V
C925	67L215B4713HT	470UF 16V LTR471M1CF11V
C929	64L700J1040AT	0.1UF 50V PEN
CN901	6L 31500	EYELET
D205	93L 64 1152T	1N4148
D206	93L 64 1152T	1N4148
D207	93L 64 1152T	1N4148
D208	93L 64 1152T	1N4148
D209	93L 64 1152T	1N4148
D210	93L 64 1152T	1N4148
D901	93G 6026T52T	RECTIFIER DIODE FR107
D902	93L 6038P52T	PS102R
D903	93L 64 1152T	1N4148
F901	84G 56 1	FUSE 2A 250V WICKMANN
FB901	71L 55 29	FERRITE BEAD
IC903	56L 158 4 T A	H431BA

J002	61L 60222152T	CFR 220 OHM +-5% 1/6W
L902	6L 31502	1.5MM RIVET
PT201	6L 31502	1.5MM RIVET
PT202	6L 31502	1.5MM RIVET
Q901	57L 420 PP T	2PA733P
Q902	57L 419 PP T	2PC945P
R201	61L 60224352T	24K OHM 5% 1/6W
R224	61L 17210252T	1K OHM 5% 1/4W
R225	61L 17210252T	1K OHM 5% 1/4W
R226	61L 17210252T	1K OHM 5% 1/4W
R227	61L 17210252T	1K OHM 5% 1/4W
R228	61L 17210252T	1K OHM 5% 1/4W
R229	61L 17210252T	1K OHM 5% 1/4W
R230	61L 17210252T	1K OHM 5% 1/4W
R231	61L 17210252T	1K OHM 5% 1/4W
R232	61L 17210252T	1K OHM 5% 1/4W
R233	61L 17210252T	1K OHM 5% 1/4W
R904	61L214Y10552T	1M,1/4W
R905	61L214Y10552T	1M,1/4W
R906	61L214Y10552T	1M,1/4W
R907	61L214Y10552T	1M,1/4W
R915	61L 17210052T	100HM 5% 1/4W
R916	61L 17210352T	CFR 10KOHM +-5% 1/4W
R920	61L175L47052T	47OHM +-5% 1/2W
R921	61L175L47052T	47OHM +-5% 1/2W
R922	61G 20033352T	33KOHM 1% 1/4W
R923	61G 20036252T	3.6KOHM 1% 1/4W
R924	61G 20024252T	2.4KOHM 1% 1/4W
R925	61L 17210252T	1K OHM 5% 1/4W
R926	61L 17210252T	1K OHM 5% 1/4W
R929	61L 17210152T	100 OHM 5% 1/4W
T901	6L 31502	1.5MM RIVET
ZD902	93L 39 5452T	ZENER HZ12B2
ZD903	93G 39 7752T	HZ5C1-E
	90L6064 1	HEAT SINK
	M1L1730 8128	SCREW M3x8
D910	93G 60245	SP10150
D911	93G 60217	FMB-29L
	96L 29 6	SHRINK TUBE UL/CSA
R903	61L152M10458F	100K OHM 5% 2W

	90L6064 1	HEAT SINK
	M1L1730 8128	SCREW M3x8
Q903	57L 667 15	FQPF7N80 TO-220F
	96L 29 6	SHRINK TUBE UL/CSA
R917	61L 2J39858F	0.390OHM 5% 2W
BD901	93G 50460502	KBP206G
IC901	56G 379 32	SG6841DZ DIP-8
	71L 100509	FERRITE CORD
	87L 501 14 RF	AC SOCKET
	95G8021 2520	WIRE HARNESS
	95L 900567	HARNESS
	96L 29 6	SHRINK TUBE UL/CSA
	15L8144 1	BRACKET BASE
	20L 023 1	BRACKET RISER
	34L1497 Y2 T	BASE
	34L1499 Y2 T	RISER FRONT
	34L1500 Y2 T	RISER REAR
	34L1501 Y2 T	VESA COVER
	37L 522 1	HINGE ASSY
	M1L 130 8225	SCREW
	M1L 140 8225	SCREW
	Q1L 130 8 47	SCREW
	Q1L 330 8 47	SCREW 3X8mm
	Q1L 330 8 47	SCREW 3X8mm

T980KSLHK8DLN

Location	Part No.	Description
	011G6036 1	SPACER SUPPORT SCC-24
	012G 394600	FOOT FORON
	015G5689502 1	GND LUG (AL)
	015G8142 1	MAIN FRAME
	023G3178700 1A	LOGO
	026G 800700 5B	BARCODE LABEL
	033G4669 GV C	POWER BUTTON
	033G4817 GV T	keypad button
	034G1495AY2 T	BEZEL
	034G1496 Y2 T	REAR COVER
	040G 191700 2E	ID LABEL
	040G 581700 3A6813	CARTON LABEL
	041G7800700 5A	QSU
	044G3231 9	EVA WASHER
	044G3935 1	EPS(L)
	044G3935 2	EPS(R)
	044G3935 3EPE	EPE
	044G3935700 1A	CARTON
	044G6000700 1A	SPACE BOX
	044G6000700 2A	SPACE BOX
	044G600260811A	PAPER BOARD
	044G9003 90	CORNER PAPER
	044G9003115	CORNER PAPER
	044G9003132	CORNER PAPER
	044GSLIP100 1A	PLASTIC SLIP SHEET
	044GSLIP100 2A	PLASTIC SLIP SHEET
	045G 88626DE3	PE BAG FOR MONITOR
	052G 1186	SMALL TAPE
	052G 1211516	ALUMINUM TAPE
	052G6022 1500	SMALL TAPE
	052G6025 11772	MYLAR
	052G6025 11932	MYLAR
	070G1900700 2B	CD MANUAL
	085G 673 1	SHIELD-INVERTER
E089B	089G1738LAA 16	SIGNAL CABLE
E089A	089G402A18NISD	POWER CORD
E095	095G8018 30576	LVDS CABLE(JAE)

	0M1G 330 4128	SCREW M3X4
	0M1G1730 6128	SCREW M3x6
	0M1G1730 6128	SCREW M3x6
	0M1G1730 6128	SCREW M3x6
	0M1G1740 6128	SCREW
	0M1G2940 10225	SCREW
	0Q1G 330 8 47	SCREW 3X8mm
	705L 980 87DL1	CN901 ASS'Y
	705L980KB34083	19" COVER ASS'Y
	750LLS90EX1 ZB	SEC 19" EX1 PANEL(LOO) ZB
	CBPC980KSLDR	CONVERSION BOARD
	KEPC980KED1	KEY BOARD
	PWPC1942SED1	POWER BOARD
	071G 100509	FERRITE CORD
	087G 501 14 RF	AC SOCKET
	095G 900567	WIRE HARNESS
	095G8021 2520	WIRE HARNESS
	096G 29 6	H.S. TUBE
	015G8144 1	BRACKET BASE
	020G 023 1	BRACKET RISER
	034G1497 Y2 B	BASE
	034G1499 Y2 B	RISER FRONT
	034G1500 Y2 B	RISER REAR
	034G1501 Y2 T	VESA COVER
	0M1G 130 8225	SCREW
	0M1G 140 8225	SCREW M3X8
	0Q1G 130 8 47	SCREW
	0Q1G 330 8 47	SCREW 3X8mm
	0Q1G 330 8 47	SCREW 3X8mm
M037	S37G5221	19" DELL LCD HINGE ASS'Y
CN101	033G3802 8H	WAFER 8P RIGHT ANGLE PITCH 2.0
CN104	033G8013 6 H	6P PLUG R/A
CN103	033G8027 24 H	CONN W TO B12P*2 P*2.0 4505-2
	040G 45762412B	CBPC LABEL
CN100	088G 35315F HJ	SOC SUBD H 15P F
X101	093G 22 53 H	14.31818MHZ/30PF/49US
X102	093G 22 53 H	14.31818MHZ/30PF/49US
	AIC980KSLDD	MAIN BOARD
R101	061G 60210152T	100OHM +- 5% 1/6W

SW104	077G 600 4 HJ	TACT SWITCH
SW103	077G 600 4 HJ	TACT SWITCH
SW102	077G 600 4 HJ	TACT SWITCH
SW101	077G 600 4 HJ	TACT SWITCH
LED1	081G 12 1A GP	LED
CN101	095G8014 8 21	wire harness
	715L1408 1A	KEY BOARD
CON201	033G8021 2D AC	CONN.2P R/A 87210-0236 DIP BY
CON202	033G8021 2D AC	CONN.2P R/A 87210-0236 DIP BY
CON203	033G8021 2D AC	CONN.2P R/A 87210-0236 DIP BY
CON204	033G8021 2D AC	CONN.2P R/A 87210-0236 DIP BY
CN901	033G8029 4A	PLUG
	040G 45762420A	LABEL 25x6mm
IC902	056G 139 3B	PC123 Y82FZ0F
Q209	057G 761 6	2SC5706-P-E
Q210	057G 761 6	2SC5706-P-E
Q211	057G 761 6	2SC5706-P-E
Q212	057G 761 6	2SC5706-P-E
NR901	061G 58120 WT	NTCR 12OHM 20% 2A SCK-122
C213	063G210J1842A2	PMS 0.18UF 250V
C214	063G210J1842A2	PMS 0.18UF 250V
C229	065G 3J2206ET	22PF 5% SL 3KV TDK
C227	065G 3J2206ET	22PF 5% SL 3KV TDK
C228	065G 3J2206ET	22PF 5% SL 3KV TDK
C226	065G 3J2206ET	22PF 5% SL 3KV TDK
C901	065G305M2222BP	2200PF +-20%
C902	065G305M2222BP	2200PF +-20%
C913	065G306M3322F2	3300PF +-20% 400VAC Y1
C912	065G306M4722BP	4700PF +-20% 400VAC
C923	067G215L102 3R	LOW E.S.R 1000UF +/-20% 16V
C922	067G215L102 4N	KY25VB1000M-L 12.5*20
C904	067G215S10115K	100UF 450V
	071G 55 2	FERRITE BEAD 6.5*5*1.7
L903	073G 253 91 LS	CHOKE BY LI SHIN
L904	073G 253 91 LS	CHOKE BY LI SHIN
L202	073G 253139 HA	CHOKE COIL
L201	073G 253139 HA	CHOKE COIL
L902	073L 174 40LSG	LINE FILTER
PT202	080LL15T 7YSG	X'FMR

PT201	080LL15T 7YSG	X'FMR
T901	080LL17T 2 TG	X'FMR
CON102	095G8014 6 19	WIRE HARNESS
	705L 560 57 DL	D910/D911 ASS'Y
	705L 560 61 06	R903 ASS'Y
	705L 780 57 DL	Q903 ASS'Y
	705L 780 61 07	R917 ASS'Y
	705L1742 HL	BD901/C903/IC901 ASS'Y
	PW1942SED1SMT	POWER BOARD FOR SMT
	002F0605100	SCREW NUTS M6.0*P1.0
	004F0612052 00	METAL WASHER
	004F061210M 00	METAL WASHERS12.0*6.03*4.70H
	004F061210T 00	METAL WASHERS12.0*8.00*1.6H
	004F061210T 01	METAL WASHERS12.0*4.72*1.0T
	015F 522110	BRACKET
	015F 522130	BRACKET
	019F20173L0	WASHER
	019F20173R0	WASHER
	028F0623090	SHAFT
	040G 457624 1B	LABEL-CPU
U106	056G 56327A	IC AP1117E18LA SOT223-3L ANACHIP
U105	056G 585 4A	AP1117E33LA
U101	056G1125137 X	W78E065A40PL PLCC44
U103	056G1133 34	M24C02-WMN6TP
U104	056G1133 56	M24C16-WMN6TP
U102	056L 562 58	GMZAN3/SL (AC)
Q101	057G 417 4	PMBS3904/PHILIPS-SMT(04)
Q102	057G 417 4	PMBS3904/PHILIPS-SMT(04)
Q105	057G 417 4	PMBS3904/PHILIPS-SMT(04)
Q104	057G 763 1	A03401 SOT23 BY AOS(A1)
RP103	061L 125472 8	CHIP AR 8P4R 4.7K OHM+-5%1/16W
R146	061L0603000	RST SM 0603 JUMP MAX 0R05 R
R169	061L0603000	RST SM 0603 JUMP MAX 0R05 R
R142	061L0603000	RST SM 0603 JUMP MAX 0R05 R
FB104	061L0603000	RST SM 0603 JUMP MAX 0R05 R
R141	061L0603101	CHIPR 100 OHM +-5% 1/16W
R139	061L0603101	CHIPR 100 OHM +-5% 1/16W
R137	061L0603101	CHIPR 100 OHM +-5% 1/16W
R130	061L0603101	CHIPR 100 OHM +-5% 1/16W

R129	061L0603101	CHIPR 100 OHM +-5% 1/16W
R128	061L0603101	CHIPR 100 OHM +-5% 1/16W
R126	061L0603101	CHIPR 100 OHM +-5% 1/16W
R125	061L0603101	CHIPR 100 OHM +-5% 1/16W
R120	061L0603101	CHIPR 100 OHM +-5% 1/16W
R119	061L0603101	CHIPR 100 OHM +-5% 1/16W
R111	061L0603101	CHIPR 100 OHM +-5% 1/16W
R110	061L0603101	CHIPR 100 OHM +-5% 1/16W
R109	061L0603101	CHIPR 100 OHM +-5% 1/16W
R102	061L0603101	CHIPR 100 OHM +-5% 1/16W
R164	061L0603102	CHIPR 1K OHM +-5% 1/16W
R165	061L0603102	CHIPR 1K OHM +-5% 1/16W
R171	061L0603104	RST SM 0603 RC0603 100K PM5 R
FB103	061L0603220	CHIPR 22 OHM+-5% 1/16W
FB102	061L0603220	CHIPR 22 OHM+-5% 1/16W
FB101	061L0603220	CHIPR 22 OHM+-5% 1/16W
R157	061L0603221	CHIPR 220 OHM+-5% 1/16W
R158	061L0603221	CHIPR 220 OHM+-5% 1/16W
R159	061L0603221	CHIPR 220 OHM+-5% 1/16W
R160	061L0603221	CHIPR 220 OHM+-5% 1/16W
R115	061L0603222	CHIPR 2.2K OHM+-5% 1/16W
R116	061L0603222	CHIPR 2.2K OHM+-5% 1/16W
R132	061L0603272	RST SM 0603 RC22H 2K7 PM1 R
R131	061L0603272	RST SM 0603 RC22H 2K7 PM1 R
R112	061L0603470	CHIPR 47 OHM +-5% 1/16W
R114	061L0603470	CHIPR 47 OHM +-5% 1/16W
R144	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R147	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R148	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R154	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R155	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R161	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R162	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R163	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R173	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R168	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R143	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R117	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R118	061L0603472	CHIPR 4.7K OHM +-5% 1/16W

R122	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R123	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R127	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R133	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R134	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R135	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R156	061L0603473	RST SM 0603 RC0603 47K PM5 R
R106	061L0603750 9F	75OHM 1% 1/10W
R107	061L0603750 9F	75OHM 1% 1/10W
R108	061L0603750 9F	75OHM 1% 1/10W
R172	061L1206331	CHIP 330OHM 5% 1/4W
C154	065G0603102 31	CHIP 1000PF 50V NPO
C156	065G0603102 31	CHIP 1000PF 50V NPO
C155	065G0603102 32	1000PF +-10% 50V X7R
C153	065G0603102 32	1000PF +-10% 50V X7R
C157	065G0603102 32	1000PF +-10% 50V X7R
C152	065G0603102 32	1000PF +-10% 50V X7R
C174	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C123	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C125	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C127	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C130	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C132	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C134	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C137	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C139	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C142	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C145	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C150	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C163	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C167	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C173	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C175	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C124	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C144	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C133	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C168	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C128	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C138	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R

C159	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C164	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C149	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C141	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C135	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C131	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C126	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C119	065G0603104 12	CER2 0603 X7R 16V 100N PM10 R
C147	065G0603220 31	CER1 0603 NP0 50V 22P PM5 R
C176	065G0603220 31	CER1 0603 NP0 50V 22P PM5 R
C148	065G0603220 31	CER1 0603 NP0 50V 22P PM5 R
C177	065G0603220 31	CER1 0603 NP0 50V 22P PM5 R
C113	065G0603473 32	CHIP 0.047UF 50V X7R
C106	065G0603473 32	CHIP 0.047UF 50V X7R
C114	065G0603473 32	CHIP 0.047UF 50V X7R
C112	065G0603473 32	CHIP 0.047UF 50V X7R
C104	065G0603473 32	CHIP 0.047UF 50V X7R
C108	065G0603473 32	CHIP 0.047UF 50V X7R
L106	071G 56K121 M	CHIP BEAD
L105	071G 56K121 M	CHIP BEAD
L104	071G 56K121 M	CHIP BEAD
L103	071G 56K121 M	CHIP BEAD
L102	071G 56K121 M	CHIP BEAD
L101	071G 56K121 M	CHIP BEAD
FB105	071G 56K121 M	CHIP BEAD
R101	071G 59Q101 Y	CHIP BEAD 0603 100ohm TAIYO YUDEN
R104	071G 59Q101 Y	CHIP BEAD 0603 100ohm TAIYO YUDEN
R105	071G 59Q101 Y	CHIP BEAD 0603 100ohm TAIYO YUDEN
D112	093G 39147SEM	ZMM5V6ST
D111	093G 39147SEM	ZMM5V6ST
D109	093G 39147SEM	ZMM5V6ST
D108	093G 39147SEM	ZMM5V6ST
D107	093G 39147SEM	ZMM5V6ST
D104	093G 39147SEM	ZMM5V6ST
D103	093G 39147SEM	ZMM5V6ST
D102	093G 39147SEM	ZMM5V6ST
D110	093G 64 42 P	BAV70 SOT-23
D101	093G 6433P	BAV99
D105	093G 6433P	BAV99

D106	093G 6433P	BAV99
	715L1280 E	main board
	090G6064 1	HEAT SINK
D911	093G 60217	FMB29L 10A 100V SANKEN
D910	093G 60245	SP10150
	0M1G1730 8128	SCREW M3x8
R903	061G152M10458F	100K OHM 5% 2W
	096G 29 6	H.S. TUBE
Q903	057G 667 22	FQPF8N80C
	090G6064 1	HEAT SINK
	0M1G1730 8128	SCREW M3x8
R917	061G 2J39858F	0.390OHM 5% 2W
	096G 29 6	H.S. TUBE
IC901	056G 379 32	SG6841DZ DIP-8
BD901	093G 50460502	KBP206G
U201	056G 608 1	TL1451ACD
Q205	057G 417 4	PMBS3904/PHILIPS-SMT(04)
Q206	057G 417 4	PMBS3904/PHILIPS-SMT(04)
Q207	057G 417 6	PMBS3906/PHILIPS-SMT(06)
Q208	057G 417 6	PMBS3906/PHILIPS-SMT(06)
Q202	057G 760 4B	PDTA144WK SOT346
Q201	057G 760 5B	PDTC144WK SOT346
Q204	057G 763 3	AO4411 SO-8
Q203	057G 763 3	AO4411 SO-8
R204	061L0603103	CHIPR 10K OHM +-5% 1/16W
R239	061L0603123	CHIP 12K OHM 1/16W
R238	061L0603123	CHIP 12K OHM 1/16W
R223	061L0603123	CHIP 12K OHM 1/16W
R222	061L0603123	CHIP 12K OHM 1/16W
R211	061L0603123	CHIP 12K OHM 1/16W
R210	061L0603123	CHIP 12K OHM 1/16W
R220	061L0603153	CHIPR 15KOHM+-5% 1/10W
R221	061L0603153	CHIPR 15KOHM+-5% 1/10W
R217	061L0603221	CHIPR 220 OHM+-5% 1/16W
R216	061L0603221	CHIPR 220 OHM+-5% 1/16W
R212	061L0603392	CHIP 3.9K OHM 1/16W
R213	061L0603392	CHIP 3.9K OHM 1/16W
R214	061L0603392	CHIP 3.9K OHM 1/16W
R215	061L0603392	CHIP 3.9K OHM 1/16W

R237	061L0603471	CHIPR 470 OHM+-5% 1/16W
R236	061L0603471	CHIPR 470 OHM+-5% 1/16W
R219	061L0603471	CHIPR 470 OHM+-5% 1/16W
R218	061L0603471	CHIPR 470 OHM+-5% 1/16W
R209	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R208	061L0603472	CHIPR 4.7K OHM +-5% 1/16W
R202	061L0603512	CHIP 5.1K OHM 1/16W
R203	061L0603512	CHIP 5.1K OHM 1/16W
R241	061L0603513	CHIP 51K OHM
R240	061L0603513	CHIP 51K OHM
R206	061L0603683	CHIP 68K OHM 1/16W
R205	061L0603683	CHIP 68K OHM 1/16W
R235	061L0603821	RST SM 0603 RC22H 820R PM1 R
R234	061L0603821	RST SM 0603 RC22H 820R PM1 R
F201	061L1206000	CHIPR 0 OHM +-5% 1/8W
R912	061L1206101	CHIP 100 OHM 5% 1/8W
R928	061L1206102	CHIP 1K OHM 5% 1/8W
R913	061L1206103	CHIP 10KOHM 5% 1/4W
R901	061L1206105	CHIP 1MOHM 5% 1/4W
R902	061L1206105	CHIP 1MOHM 5% 1/4W
R914	061L1206240 2F	CHIP 24KOHM1% 1/4W
R909	061L1206472	CHIP 4.7KOHM 5% 1/4W
R910	061L1206472	CHIP 4.7KOHM 5% 1/4W
R911	061L1206472	CHIP 4.7KOHM 5% 1/4W
R908	061L1206519	CHIPR 5.1OHM +-5% 1/4W
C230	065G0805102 32	CHIP 1000P 50VX7R 0805
C931	065G0805102 32	CHIP 1000P 50VX7R 0805
C910	065G0805102 32	CHIP 1000P 50VX7R 0805
C930	065G0805102 32	CHIP 1000P 50VX7R 0805
C231	065G0805102 32	CHIP 1000P 50VX7R 0805
C206	065G0805104 22	0.1UF +-10% 25V X7R 080
C204	065G0805104 22	0.1UF +-10% 25V X7R 080
C205	065G0805104 22	0.1UF +-10% 25V X7R 080
C202	065G0805104 22	0.1UF +-10% 25V X7R 080
C907	065G0805104 32	CHIP 0.1U 50V X7R
C908	065G0805104 32	CHIP 0.1U 50V X7R
C909	065G0805104 32	CHIP 0.1U 50V X7R
C926	065G0805104 32	CHIP 0.1U 50V X7R
C927	065G0805104 32	CHIP 0.1U 50V X7R

C212	065G0805105 22	CHIP 1UF 25V X7R 0805
C203	065G0805105 22	CHIP 1UF 25V X7R 0805
C210	065G0805105 22	CHIP 1UF 25V X7R 0805
C220	065G0805105 22	CHIP 1UF 25V X7R 0805
C211	065G0805105 22	CHIP 1UF 25V X7R 0805
C209	065G0805105 22	CHIP 1UF 25V X7R 0805
C219	065G0805105 22	CHIP 1UF 25V X7R 0805
C208	065G0805331 31	CHIP 330pF 50V NPO
C911	065G0805471 21	CHIP 470PF 25V NPO
C221	065G0805474 22	CHIP 0.47UF 25V X7R 0805
C222	065G0805474 22	CHIP 0.47UF 25V X7R 0805
D203	093G 39S 3 T	BZT52-C11
D204	093G 39S 3 T	BZT52-C11
ZD904	093G 39S 19 T	PTZ7.5B
ZD901	093G 39S 23 T	GLZ22B
D202	093G2004 2A	SM240A DO-214AC
D201	093G3004 2	SR34 PAN JIT
	PW1942SED1AI	POWER BOARD FOR AI
CN901	006G 31500	EYELET
C904	006G 31502	1.5MM RIVET
C214	006G 31502	1.5MM RIVET
C213	006G 31502	1.5MM RIVET
T901	006G 31502	1.5MM RIVET
PT201	006G 31502	1.5MM RIVET
PT202	006G 31502	1.5MM RIVET
L902	006G 31502	1.5MM RIVET
	715L1283 5	PCB
R915	061G 17210052T	100HM 5% 1/4W
R929	061G 17210152T	100 OHM 5% 1/4W
R926	061G 17210252T	1K OHM 5% 1/4W
R925	061G 17210252T	1K OHM 5% 1/4W
R233	061G 17210252T	1K OHM 5% 1/4W
R232	061G 17210252T	1K OHM 5% 1/4W
R231	061G 17210252T	1K OHM 5% 1/4W
R230	061G 17210252T	1K OHM 5% 1/4W
R229	061G 17210252T	1K OHM 5% 1/4W
R228	061G 17210252T	1K OHM 5% 1/4W
R227	061G 17210252T	1K OHM 5% 1/4W
R226	061G 17210252T	1K OHM 5% 1/4W

R225	061G 17210252T	1K OHM 5% 1/4W
R224	061G 17210252T	1K OHM 5% 1/4W
R916	061G 17210352T	CFR 10KOHM +-5% 1/4W
R924	061G 20024252T	2.4KOHM 1% 1/4W
R922	061G 20033352T	33KOHM 1% 1/4W
R923	061G 20036252T	3.6KOHM 1% 1/4W
J002	061G 60222152T	CFR 220OHM +-5% 1/6W
R201	061G 60224352T	24K OHM 5% 1/6W
R920	061G175L47052T	47OHM +-5% 1/2W
R921	061G175L47052T	47OHM +-5% 1/2W
R907	061L214Y10552T	1M,1/4W
R904	061L214Y10552T	1M,1/4W
R905	061L214Y10552T	1M,1/4W
R906	061L214Y10552T	1M,1/4W
FB901	071G 55 29	FERRITE BEAD
ZD902	093G 39 5452T	HZ12B2-E
ZD903	093G 39 7752T	HZ5C1-E
D901	093G 6026T52T	RECTIFIER DIODE FR107
D902	093G 6038P52T	PS102R
D903	093G 64 1152T	1N4148
D210	093G 64 1152T	1N4148
D209	093G 64 1152T	1N4148
D208	093G 64 1152T	1N4148
D207	093G 64 1152T	1N4148
D206	093G 64 1152T	1N4148
D205	093G 64 1152T	1N4148
IC903	056G 158 10 T	IC AZ431AZ-AE1 TO-92 BY AAC
Q902	057G 419 PP T	2PC945P
Q901	057G 420 PP T	2PA733P
C929	064G700J1040AT	0.1UF 50V PEN
C905	065G 2K152 1T6921	1.5NF/2KV Y5P +-10%
C921	065G517K102 5T	1000PF 10% Y5P 500V
C920	065G517K102 5T	1000PF 10% Y5P 500V
C925	067G215B4713HT	470UF 16V LTR471M1CF11VR 8*11m
C924	067G215B4713HT	470UF 16V LTR471M1CF11VR 8*11m
C201	067G215C1514HT	LOW ESR 150UF 25V 8*7MM
C223	067G215C1514HT	LOW ESR 150UF 25V 8*7MM
F901	084G 56 1	FUSE 2A 250V WICKMANN

Diversity of T980KALHK8DLN compared with T980KSLHK8DLN		
Location	**Part No. for TPV**	**Description**
	015G8142 2	MAIN FRAME
E089B	089G1738GAA 16	SIGNAL CABLE
	095G8018 30590	WIRE HARNESS
	750GLU90N04 2Z	AU 19" V2D ZBD PANEL
	CBPC980KALDR	CONVERSION BOARD
	PWPC1942AUD1	POWER BOARD
CN100	088G 35315F H	D-SUB 15PIN
	AIC980KALDR	MAIN BOARD
L201	073G 253139 SA	CHOKE COIL
L202	073G 253139 SA	CHOKE COIL
	PW1942AUD1SMT	POWER BOARD FOR SMT
R234	061L0603621	CHIPR 620 OHM+-5% 1/16W
R235	061L0603621	CHIPR 620 OHM+-5% 1/16W
	PW1942AUD1AI	POWER BOARD FOR AI

14. Definition Of Pixel Defects

Type 1. LM190E03

Dot Defect

Bright Dot

Dots(sub-pixels) which appeared brightly in the screen when the LCM displayed with dark pattern.

- R,G or B 1 dot ---------- 0 Max
- Adjacent 2 dots ---------- 0 Max
- Total amount of Bright dots ---------- 0 Max
- Minimum distance of Bright dots ---------- NA

Dark Dot

Dots(sub-pixels) which appeared darkly in the screen when the LCM displayed with bright pattern.

- 1 dot ---------- 4 Max
- Adjacent 2 dots ---------- 2 Max
- Total amount of Dark dot ---------- 4 Max
- Minimum distance of Dark dots ---------- 15mm

Total amount of Dot Defects ----------5 Max(Combination)

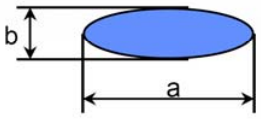
Note) a. Every dot herein means Sub-Pixel.(Each Red, Green, or Blue Color)
b. Bright dot
- Red or Blue dots damaged less than half size of sub-pixel are not defined as dot defects.
- Green dots damaged less than one third size of sub-pixel are not defined as dot defects.

c. Dark dot smaller than half size of sub-pixel is not counted as a dot defect.

Polarizer Defects

Items		Criteria
Scratches	Linear	**0.01<=W<=0.07, 1.0<=L<=10.0, N<=3**
Dent	Circular	**0.2<=D<=0.6, N<=3**

Where, W : Width
L : Length
D : Average diameter =(a+b)/2



Note)
a. Average Diameter
b. Linear : a > 2b , Circular : a≤2b

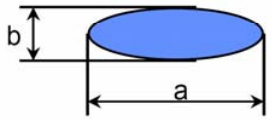
Note) continued

c. Extraneous substances which can be wiped out, like Finger Print, Particles, are not considered as defects.
d. Defects which are on the Black Matrix(outside of Active Area) are not considered as defects.

Foreign Material

Items	Criteria
Linear	**0.05<=W<=0.2, 0.3<=L<=3.0, N<=3**
Circular	**0.2<=D<=0.6, N<=3**

Where, W : Width
L : Length
D : Average diameter =(a+b)/2



Note)
a. Average Diameter
b. Linear : a >2b , Circular : a≤2b

Line Defect

All kinds of line defects such as vertical, horizontal or cross are not allowed.

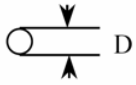
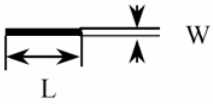
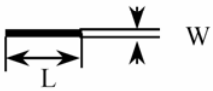
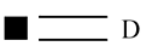
Bezel Appearance

Scratches, minor bents, stains, particles on the Bezel frame are not considered as a defect.

Others

Issues which is not defined in this criteria shall be discussed with both parties, Customer and Supplier, for better solution.

Type 2. LTM190EX-L01

Defect Type	Accept (mm)	Reject (mm)
*Dark / bright spot *1* *(foreign material,Stain,Dust)* 	0.1 < D ≤ 0.8 N ≤ 4	D > 0.8 N > 4
Bright line (light lint), or *dark line (dark lint / hair)* 	0.01 < W ≤ 0.08 0.3 < L ≤ 2.0 N ≤ 4	W > 0.08 L > 2.0 N > 4
Polarizer scratch 	0.01 < W ≤ 0.1 0.3 < L ≤ 5.0 N ≤ 3	W > 0.1 L > 5.0 N > 3
Polarizer dent/bubble 	D ≤ 0.8 N ≤ 3	D > 0.8 N > 3
Maximum allowable number of defects	N ≤ 10	N > 10

[D : diameter, W : width, L : length, N : count]
****1 : Translucent edge is ignored in measuring the diameter of spot.***

Defect Type	Accept	Reject
Bright dot (Fig. 1)		
Random	N ≤ 0	N > 0
Two Adjacent	N ≤ 0	N > 0
Three Adjacent	N ≤ 0	N > 0
Dark dot ***(Fig. 2)***		
Random	N ≤ 5	N > 5
Two Adjacent	N ≤ 2	N > 2
Three Adjacent	N ≤ 1	N > 1
Maximum allowable number of dot defect	N ≤ 5	N > 5
Minimum distance between defects, ***(Fig. 3)***		
dark dot - to - dark dot	L ≥ 5mm	L < 5mm

[L : length, N : count]

Definitions*/ Notes;*

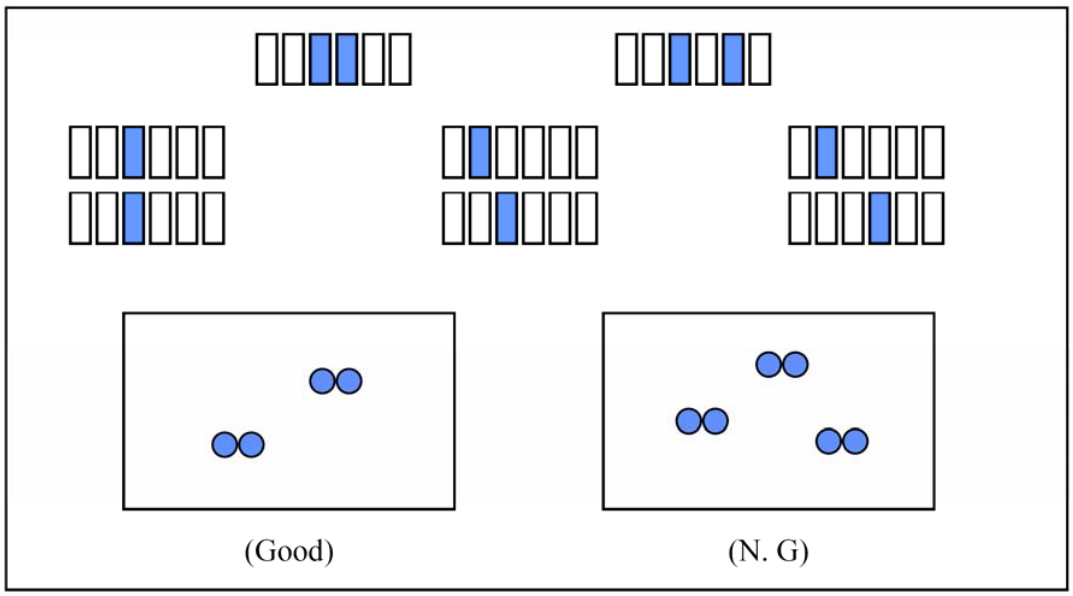
-A bright dot any Red, Green, or Blue pixel suck in the "On" mode.

Refer to the "Fig. 1" for detail information of bright dot defect definition.

- A dark dot any Red, Green, or Blue pixel suck in the "Off " mode.

Fig. 2. Dark dot defect description

【two adjacent】



【three adjacent】

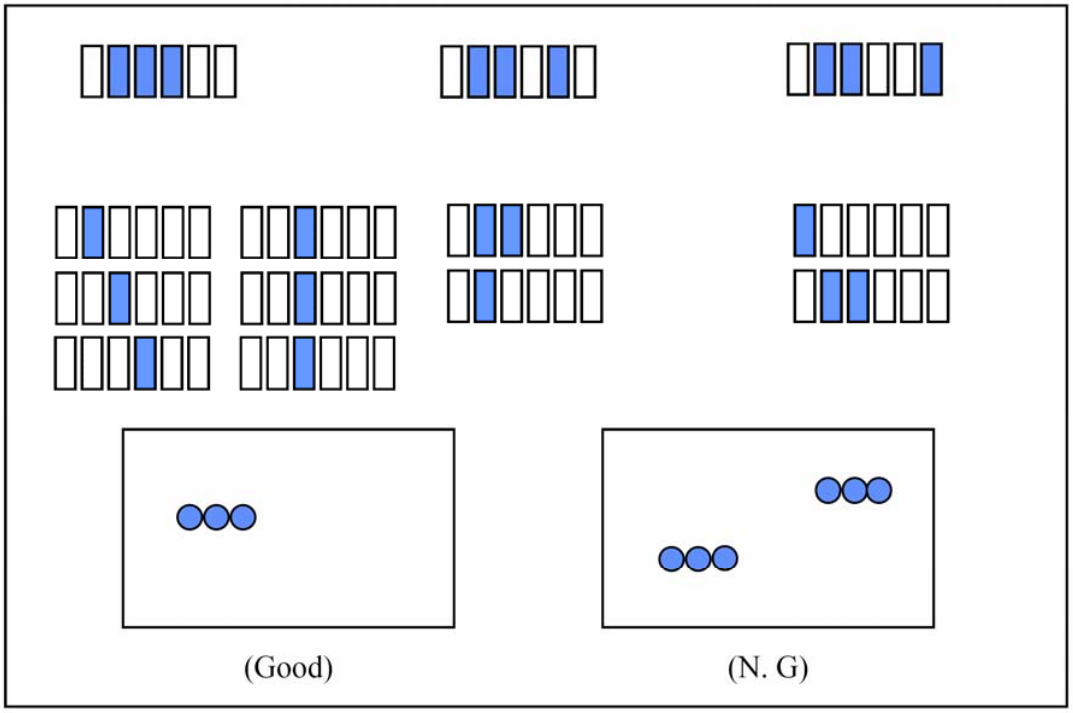
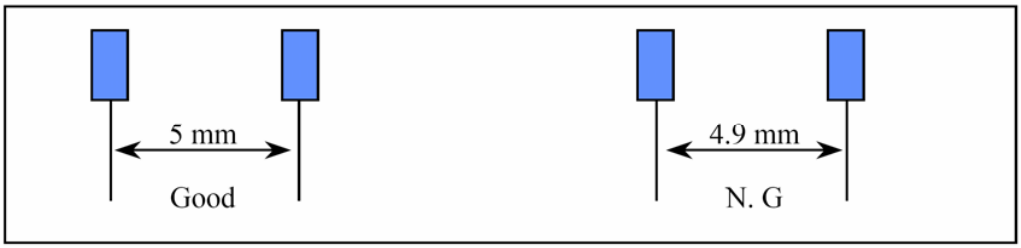


Fig. 3. Minimum distance between dot defects

【dark dot - to - dark dot】



* Adjacent two & three dots in horizontal direction will be considered as one dot.
* Minimum distance criteria is applied to the defect , which are not defined as adjacent dot(two or three) in the spec.
* Will not considered the distance between bright dot & dark dot.
* Will not considered the distance between dot & mechanical defect.